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MECAMYLAMINE IN THE TREATMENT OF HYPERTENSION.

By G. E. BAUER, A. W. T. EDWARDS, F. L. RITCHIE AND H. M. WHYTE,

From the Cardio-Vascular Clinic, Sydney Hospital.

MECAMYLAMINE, an orally effective hypotensive agent with a predominantly ganglion-blocking action, has been used at the Cardio-Vascular Clinic, Sydney Hospital, since September, 1956. We have now treated 44 patients for a period of up to 20 months, and here report our experiences with this drug in the treatment of hypertensive disease up to June, 1958.

Pharmacology.

Mecamylamine (3-methylaminoisocamphane hydrochloride) is a secondary amine and therefore differs radically in chemical constitution from the ganglion-blocking compounds so far employed, namely hexamethonium, pentolinium and chlorisondamine. Mecamylamine was first synthesized by Stone *et alii* (1956), who demonstrated that its principal pharmacological action was that of a ganglion-blocking agent and that, in addition, it also had a weak non-specific curare-like effect at the neuro-muscular junction. Sympathetic blockade was associated with hypotension, mainly postural, and parasympathetic blockade caused the usual side-effects of cycloplegia, dryness of the mouth and constipation. Mecamylamine differed considerably in its chemistry from that of the other ganglion-blocking agents, and it was this difference which was thought to be responsible for the property, unique in this group of compounds, of almost complete gastro-intestinal absorption. The dose of drug producing hypotension was practically the same whether given parenterally or orally, which is in marked contrast to experiences with other ganglion-blocking agents. Being a secondary amine, the drug passes freely into cells, and this may account for some of its unique properties, including prolonged duration of action; in fact, there is some evidence that the drug is concentrated within cells (Milne *et alii*, 1957).

Clinical trials were reported by Moyer *et alii* (1956), Freis and Wilson (1956), Schneckloth *et alii* (1956), Doyle *et alii* (1956), Smirk and McQueen (1957) and Kitchin *et alii* (1957). They all thought that mecamylamine was a useful therapeutic agent and represented a definite advance in the oral treatment of severe hypertension. However, all authors stressed that in spite of apparently complete gastro-intestinal absorption alimentary side-effects were often severe, and that marked constipation and even ileus were by no means rare. Schneckloth *et alii* (1956) furthermore reported that seven out of their 35 patients suffered an unusual neuromuscular complication manifested by anxiety, tremor and

convulsions. This had not previously been observed with other ganglion-blocking agents. Smirk and McQueen (1957), after treating 40 patients for periods of up to eight months, stated that mecamylamine in fully adequate doses was more often associated with prohibitive parasympathetic side-effects than either pentolinium or chlorisondamine. They observed that mecamylamine and chlorisondamine led to vague and undefinable feelings of malaise, which made patients unwilling to continue with either drug. Kitchin *et alii* (1957) also observed this vague and general feeling of malaise, and thought that this muscular weakness might be due to the mild anticholinergic or curare-like effect observed by Stone *et alii* (1956).

Bennett *et alii* (1957) re-examined the mode of action of mecamylamine. In view of the prolonged duration of action and the fact that its molecular structure differed markedly from hexamethonium and pentolinium, these authors postulated that mecamylamine had an action not so far observed in any other compound. They suggested that the hypotensive action of mecamylamine is the result of at least three different mechanisms, namely, an effect on transmission of autonomic ganglia, an effect on the neuro-muscular junction and also a central action on higher centres. Allanby and Trounce (1957) studied the urinary excretion of mecamylamine after intravenous and oral administration. Their studies confirmed that gastro-intestinal absorption of mecamylamine was good, although by no means complete. After an intravenous dose, 80% to 98% of mecamylamine was recovered in the urine, whereas after an oral dose, between 55% and 75% of the drug was recovered. These authors demonstrated that the duration of the drug effect was largely related to the speed of excretion, and that with normal renal function 50% of the drug was excreted in 12 hours. They also confirmed the interesting observation that the renal clearance of mecamylamine was greatly affected by the urinary hydrogen ion concentration. Baer *et alii* (1956) had found in dogs that the drug was freely secreted by the renal tubules when the urine was acid, but that some reabsorption occurred when the urine was alkaline. The production of an alkaline urine, either as a result of ingestion of alkali or as a result of the concurrent use of diuretics which inhibit carbonic anhydrase, such as acetazoleamide, may lead to prolonged hypotension and other severe side-effects.

Subjects.

From September, 1956, to June, 1958, 44 patients have been treated for one to 20 months with mecamylamine at the Cardio-Vascular Clinic, Sydney Hospital. There were 21 males and 23 females with ages ranging from 29 to 64 years. The criteria for treatment were those outlined in previous publications (Bauer, 1955; Bauer *et alii*, 1957). The four patients over the age of 60 years included in this series were all treated on account of hypertensive heart failure. In accordance with the above-mentioned criteria only patients with severe hypertension were treated. Twenty-two of the 44 patients were in the accelerated phase of hypertension, with either grade 3 or grade 4 retinopathy (Keith *et alii*, 1939). Some details of the clinical condition and response to treatment of this group of patients are shown in Table I. Nine patients had frank papilloedema; 38 of the 44 patients had electrocardiographic changes of left ventricular hypertrophy of varying degree; 11 patients were in renal failure with blood urea nitrogen levels over 20 mg. per 100 ml. Fourteen of our patients were believed to have renal hypertension and 30 were diagnosed as having essential hypertension.

Technique of Treatment.

Initial therapy was always carried out in hospital. All patients were fully investigated along lines previously published, to exclude unilateral renal disease, coarctation of the aorta, phæochromocytoma and aldosteroma. All patients were encouraged to be ambulatory during treatment and to sleep propped up. The patients' cooperation was always sought, and they were warned of the parasympathetic side-effects and advised how to prevent and treat them. Blood pressure recordings were taken in the standing posture at hourly or two-hourly intervals during the waking hours. Later during the maintenance period patients were seen at monthly intervals at the clinic, and standing blood pressures were again recorded for several hours during each visit. The danger of relying on random blood pressure readings irrespective of time relation to the dose taken and of posture has previously been stressed. To repeat a statement by Rosenheim (1954), "a casual blood pressure reading in the out-patient department or surgery gives little information of value, and often upsets the patients and misleads the doctor".

Treatment was usually started with 2·5 mg. given twice a day. Patients were advised to crush the tablets and to take them at roughly twelve-hourly intervals on an empty stomach. If after two days no definite hypotensive effect was observed, the daily dose was increased by 2·5 mg., and this procedure was repeated until the desired effect was obtained. Adjustment of dosage was often required during the early weeks of treatment, but later on the effective dose remained reasonably stable.

Results.

Blood Pressure Control.

The blood pressure reduction in responsive patients was similar to what we have come to expect from ganglion-blockade. In most cases, but not all, there was a postural effect, but this was not as prominent as after pentolinium or chlorisondamine given parenterally. However, it was definite enough to make it worth while encouraging patients to sleep propped up. Systolic pressure was invariably reduced more than diastolic pressure, so that a narrowing of the pulse pressure was evident. A reduction in cardiac output was probably partly responsible for this. Recordings in the standing position showed a uniformly sustained depression of blood pressure throughout the day in some patients. In others, there was fluctuation with a trough occurring one or two hours after they took the drug. This was sometimes smoothed out by a small third dose being taken in the middle of the day. Responsive patients were stabilized in 10 to 14 days. Thereafter they showed no tendency to develop tolerance, though higher doses were often needed in cold weather.

Treatment could be regarded as being successful in 28 of the 44 cases. By success we mean that blood pressure was kept within reasonable limits and that ill effects of hypertension were relieved without undue distress from the effects of the treatment itself. The daily maintenance dose of mecamylamine ranged from 7·5 to 80 mg., but was mostly between 20 and 40 mg. Thus two out of every three patients in whom the treatment was tried responded satisfactorily. The proportion of successful cases was the same among the patients with renal hypertension (10 out of 14) as among those with essential hypertension; and among those with severe disease as indicated by grade 3 or 4 retinal changes (success in 15 of 22 cases) as among those with less severe disease. The dose required by patients with renal hypertension and those with essential hypertension was the same. Five patients who had been "successfully" treated died — three with cerebral hæmorrhage and two with myocardial infarction.

The response to treatment was unsatisfactory in 15 of the 44 cases. The treatment of two patients was suspended because they were mentally incapable of carrying it out. Another patient was uræmic, and developed severe prolonged hypertension after taking only 0·5 mg. of the drug. The others failed to obtain a satisfactory fall in blood pressure without developing intolerable side-effects. Four of these were subsequently stabilized satisfactorily on "Ecolid" given parenterally. Three patients in the group of "failures" died, one with uræmia and two with cerebral hæmorrhage.

Hypotensive Crises.

Troublesome hypotension was not encountered as frequently with mecamylamine as with pentolinium or

TABLE I.

Patients with Grade 3 or 4 Changes in the Fundus Oculi.

Case Number.	Patient's Sex and Age (Years.)	Fundus Oculi Changes (Grade.)	Electro-cardio-graphic Changes (Grade.)	Blood Urea Nitrogen Level (Mg. per 100 ml.)	Blood Pressure Before Treat-ment. (Mm. of Mercury.)	Treatment.		Blood Pressure During Treat-ment. (Mm. of Mercury.)	Severity of Symptoms.				Success or Failure.	Comment.
						Daily Dose. (Mg.)	Dura-tion (Months.)		Hypo-tensive.	Visual.	Bowel.	Mouth.		
1	M.; 32	4	3	13	240/160	80	16	150/110	0	1	1	1	S.	Died; cerebral hæmorrhage.
2	F.; 49	4	2	11	265/165	45	12	155/95	0	1	0	2	S.	
3	M.; 56	4	3	16	250/160	15	8	130/110	1	0	1	0	S.	Combined with chlorothiazide.
4	M.; 46	4	3	25	240/150	30	8	120/100	1	0	0	1	S.	
5	M.; 48	4	0	13	250/140	20	7	160/110	0	0	0	1	S.	
6	M.; 37	4	3	15	230/150	20	3	180/130	0	0	0	0	F.	A mental defective.
7	F.; 44	4	2	16	260/170	20	2	160/110	0	0	1	0	S.	Died; myocardial infarction.
8	F.; 38	4	3	18	270/140	30	1	180/100	1	2	1	1	S.	
9	M.; 55	4	3	47	250/130	0·5	1	100/70	3	0	0	0	F.	Died; cerebral hæmorrhage, uræmia.
10	M.; 47	3	2	12	220/140	25	20	150/110	0	1	0	1	S.	
11	F.; 49	3	2	10	230/140	30	16	160/110	0	0	2	1	S.	
12	F.; 36	3	3	15	260/190	35	15	110/80	0	1	1	1	S.	Died; recurrent sub-arachnoid hæmor-rhage.
13	M.; 43	3	3	55	230/150	25	14	140/110	0	1	1	1	S.	Died; cerebral hæmorrhage.
14	F.; 53	3	3	12	280/140	22·5	12	170/110	0	0	1	0	S.	
15	M.; 50	3	3	15	260/130	25	11	170/130	0	1	2	1	F.	Subsequently stabil-ized on "Ecolid".
16	F.; 40	3	1	11	280/170	25	8	180/130	0	1	2	1	F.	Died; cerebral hæmorrhage.
17	M.; 47	3	2	20	200/140	7·5	7	120/100	0	0	0	0	S.	
18	F.; 61	3	3	20	230/130	15	7	190/110	0	0	0	1	F.	
19	M.; 60	3	0	16	220/140	10	5	160/110	0	0	0	0	S.	Died; myocardial in-farction.
20	F.; 38	3	1	27	240/160	30	4	170/120	0	1	2	1	S.	
21	F.; 35	3	1	29	250/140	15	1	150/110	1	0	2	0	F.	Developed hyperten-sive encephalo-pathy; stabilized on "Ecolid".
22	M.; 39	3	3	21	260/150	25	0·5	240/130	1	2	1	1	F.	Subsequently stabilized on "Ecolid".

chlorisondamine given parenterally. It was noted in only four cases—one patient with renal failure mentioned above, one patient with chronic pyelonephritis, and in two cases shortly after the addition of chlorothiazide. Excluding patients with severe renal failure, hypotensive attacks can be prevented by proper adjustment of dosage.

Side-Effects.

The side-effects observed with mecamylamine were largely those to be expected with ganglion-blockade. Visual difficulties, especially inability to accommodate for close vision, were experienced by 12 patients, but were never as marked as with chlorisondamine. Dryness of the mouth occurred in 18 cases and was sometimes quite distressing. Constipation was the major side-effect, occurring in 22 cases, and was a greater problem than with the parenteral ganglion-blocking agents. Several patients had bowel actions only once or twice a week, some only after the use of powerful cathartics—cholinergic drugs such as neostigmin bromide or enemata. Occasionally temporary omission of the drug was necessary to allow evacuation. Two patients developed bleeding *per rectum*, probably as a result of fæcal impaction.

A number of patients developed a peculiar fatigue-anxiety syndrome with excessive tiredness, listlessness and occasionally with depression. The exact incidence of this syndrome is difficult to determine, but it was noteworthy that some patients, after cessation of therapy for other reasons, stated that in some indefinable manner they felt more relaxed and relieved after omission of the drug. This same syndrome was not observed in our patients treated with pentolinium or chlorisondamine given parenterally. None of our patients manifested the severe neurological syndrome of tremor, mental confusion and delirium, which sometimes occurs when large doses of the drug are being taken (Harrington and Kincaid-Smith, 1958).

Recently we have tried chlorothiazide together with mecamylamine. Eight patients in the above-mentioned series are now being treated successfully with a combination of these drugs. Our experience is as yet too small to allow of definite conclusions, but several of our patients had remarkable hypotensive effects after the addition of chlorothiazide. Three patients now stabilized on mecamylamine and chlorothiazide require less than 10 mg. of the ganglion-blocking drug per day, which is considerably less than the amount they previously required. We are at present studying the potentialities of this combined therapy, hoping that the addition of chlorothiazide will allow us to use smaller quantities of mecamylamine and thereby cause fewer side-effects. This will be the case if the hypotensive action of chlorothiazide is related to sodium diuresis or some more direct effect of the drug. If, however, the potentiating effect of chlorothiazide is merely due to the reduced excretion of mecamylamine, then the side effects will persist in spite of a smaller dose.

Discussion.

Previous experiences with hexamethonium, pentolinium and chlorisondamine have been reported from the Cardio-Vascular Clinic of Sydney Hospital (Bauer, 1955; Bauer *et alii*, 1957). We have shown that for good control of severe hypertensive patients, the above-mentioned drugs are best given parenterally, and a large number of patients have thus been treated with subjective and objective improvement of their disease. The success of treatment demands meticulous supervision and a cooperative and intelligent patient. Although the majority of patients can be taught to administer their own injections, it was obviously desirable to find a potent drug which would be effective when given by mouth. Mecamylamine promised to be such a drug, and our clinical experience has shown this to be justified in the majority of instances.

Mecamylamine ("Mevasine") is superior to pentolinium given orally ("Ansolysen") and to chlorisondamine given orally ("Ecolid"). If we accept a success rate for mecamylamine in 25 out of 44 cases, then the results would

appear to be considerably better than those previously reported by us for chlorisondamine given orally. Thirteen of our 44 patients had had previous experience with other ganglion-blocking agents, and the majority of them have expressed preference for mecamylamine. In some instances the control of blood pressure was much greater and the disturbance from troublesome side-effects much less. However, four patients who were treated with mecamylamine with indifferent success were subsequently well controlled with chlorisondamine given parenterally.

It is impossible to claim superiority for any one ganglion-blocking agent. Some patients are well controlled with mecamylamine given orally, while others respond better to parenteral therapy, but mecamylamine is clearly the drug of choice, of those available at present, when it comes to oral therapy. We are at present hopeful that our results with oral treatment can be further improved by the addition of chlorothiazide.

Summary.

The results of treatment of 44 severely hypertensive patients with the ganglion-blocking agent, mecamylamine, for periods up to 20 months are described. Two out of every three patients responded satisfactorily. The commonest side-effect was constipation. Mecamylamine is the best available ganglion-blocking agent for oral therapy.

Acknowledgements.

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AN IMPROVED METHOD OF PROSTATECTOMY.

By BRUCE PEARSON, F.R.C.S., F.R.A.C.S.,
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MANY are the methods described for the removal of the enlarged prostate — or rather for that part of the gland which has undergone hyperthrophy. The approach may be suprapubic (transvesical), transurethral, retropubic (Millin, prevesical), perineal, subpubic, etc. Each has variations and each variation its advocate, in whose hands results are better than by other methods.

The operation to be described is essentially the Hryntschak suprapubic procedure. Ever since Amussat, the French surgeon, in 1836 used the suprapubic route to exicse the middle lobe with scissors improvements have taken place. Fuller, of New York, in 1895 recommended removal of all the hypertrophied tissue; Freyer in 1901 described his "blind" operation. The operation was carried out under vision by Thomson-Walker in 1916. H. Harris of Australia made his great advance in 1927 when he described his method for ensuring hæmostasis and reconstruction at the bladder neck under vision.

No one methtod of prostatectomy is ideal, for all patients must be assessed individually. For many, a transurethral resection is advisable. For those better treated by open operation I have found the following procedure to give results much superior to the retropubic and suprapubic operations that I have used previously. It is not claimed that this method makes all prostatectomies easy or that the results are uniformly excellent. Far from it. The fat patient with the thin bladder wall and vascular prostate is still difficult.

Although the series of 57 cases is small, I believe that the results are sufficiently improved to warrant reporting. Except for 10 transurethral resections, they are consecutive, both public and private, good and poor risk, and were done at five different hospitals without a routine team. Two other patients were seen during this time, but considered unfit for any operative treatment and both died within a week. No suprapubic cystostomies were done, although this is sometimes necessary.

Pre-Operative Treatment.

The usual investigation, assessment and pre-operative treatment are essential. No pre-operative catheterization is carried out, except for acute retention. If a urethral catheter is in place, the bladder is washed clear, about eight ounces of sterile water are instilled and the catheter is removed. The patient is then sent to the theatre. This keeps dirty catheters out of the theatre, and the fluid in the bladder makes the exposure easier.

Operation.

Anæsthesia is usually general, although three patients in this series were "poor risks" and were given a low spinal anæsthetic and local infiltration. The patient is prepared with a transverse drape separating the abdomen from the genital area.

The incision is transverse in the line of skin creases one inch above the symphysis pubis and usually two and a half to four inches long. The rectus sheath is incised transversely and separated from the muscles beneath. These are then retracted laterally, and the bladder is exposed by dissection.

Two Allis forceps grasp the bladder near the fundus, and a scalpel is inserted into the bladder. After evacuation of the contents the opening is enlarged laterally. If the opening is made vertical, exposure is equally good, but the bladder may split down behind the symphysis pubis and is more difficult to suture later. Stay sutures are placed on the lateral margins of the bladder opening.

A Morson retractor is inserted to visualize the bladder and exclude other pathological conditions. It also allows a check on the exposure before the prostate is enucleated. If inadequate, it is easier to remedy at this stage than after the prostate has been removed and excess bleeding makes hæmostasis urgent.

The prostate is enucleated digitally in the usual way. The retractor is reinserted and the assistant keeps the cavity clear with the sucker (Figure I).

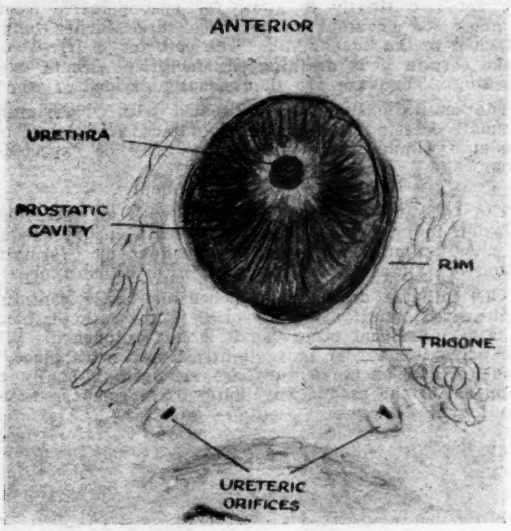

FIGURE I.

The rim of the cavity is grasped posteriorly at 6 o'clock with a long Allis forcep, and the hæmostatic

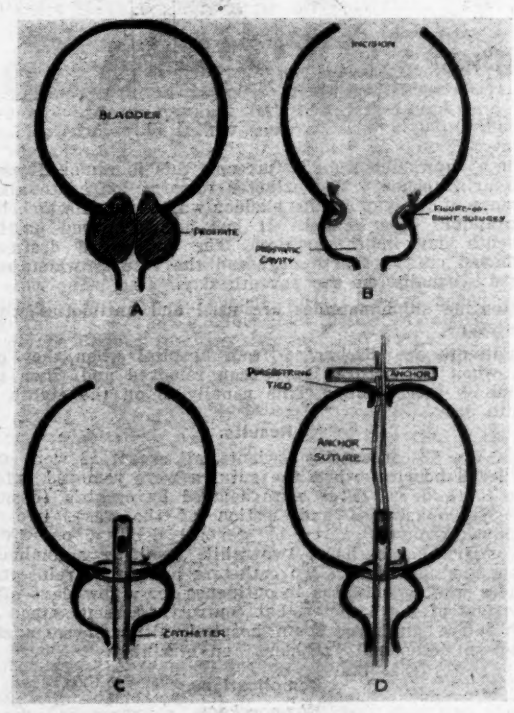

FIGURE II.

sutures are inserted. These are "figure-of-eight" sutures placed at 3 and 9 o'clock about half an inch from the rim. No. 1 plain catgut is used in the Harris boomerang needle (Figure IIB). A "V" wedge is cut from the rim at 6 o'clock (Figure III).

A whistle tip No. 22F catheter is passed from the external meatus into the bladder. Thin-walled plastic "Neoplex" catheters have been used in more recent cases and found excellent.

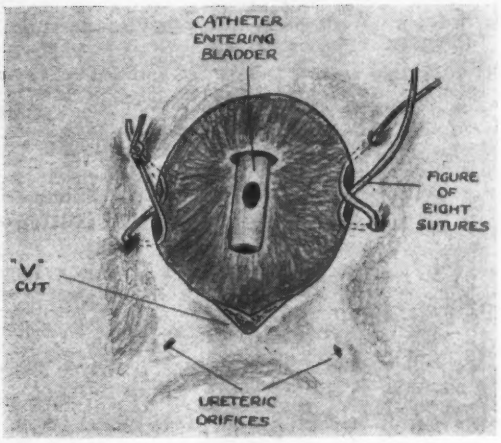

FIGURE III.

Deep transverse sutures are then passed across the cavity and tied to include the catheter (Figures IV and V). These compress the rim against the catheter, decrease venous oozing from the cavity and steady the catheter. When the catheter is removed the sutures become loose and the space allows voiding even in the

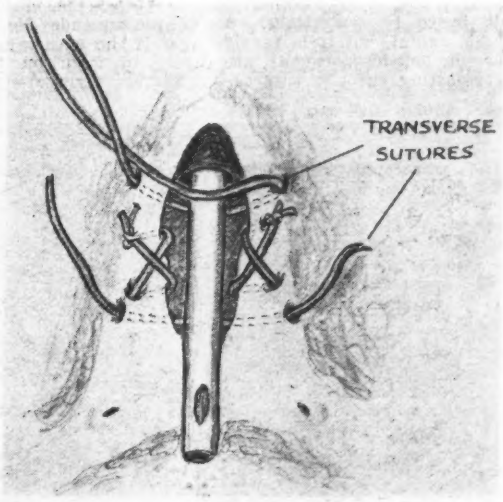

FIGURE IV.

presence of œdema. On about the sixth day the sutures usually dissolve. One to five transverse sutures are usually required, depending on the amount of bleeding.

If hæmostasis is not satisfactory, a suprapubic tube can be placed in the bladder and brought out through the incision. A length of strong silk (about 24 inches) is passed through the eye of the catheter and through the incision as an anchor suture. Hryntschak and Maluf do not use an anchor, but suture the catheter to the penis. This is more painful and less certain to keep

the catheter in the correct position. If the drainage tubing is pulled, the penis stretches and the catheter is displaced from the position for optimal drainage in the bladder. This has been my experience in some cases carried out by the retropubic method. The anchor also allows adjustment of the catheter to be made if necessary, and an irrational patient has much less chance of pulling out the catheter.

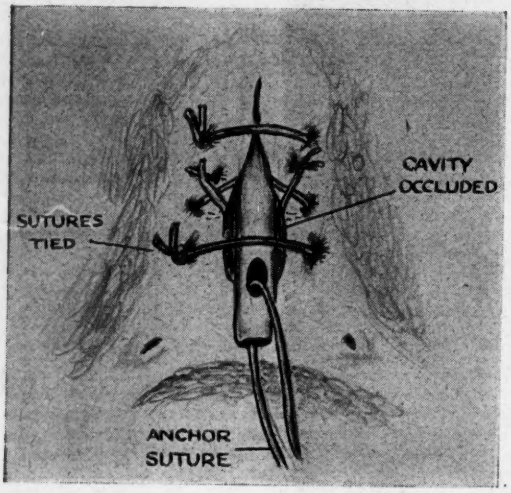

FIGURE V.

The bladder is closed with the use of a continuous inverting "purse-string" suture of No. 2 plain catgut (Figure VI). This is placed about half an inch from the edge, and it is essential not to pierce the mucosa if it is to be watertight. Maluf recommends No. 0 chromic catgut, but it is thought that if the suture does enter the bladder, calculi are likely to form on the longer lasting chromic sutures. A further figure-of-eight

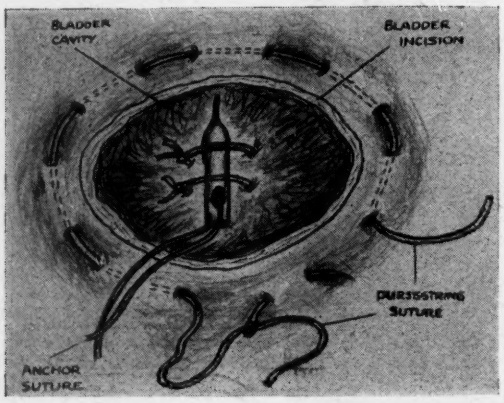

FIGURE VI.

suture is usually placed over the dimple of the purse-string to make the closure more watertight.

A Silverton syringe inflates the bladder via the urethra, and if a leakage occurs the site can be seen and the opening oversewn (Figure VII). If control of hæmorrhage is not satisfactory, a suprapubic tube can be inserted without difficulty before the wound is closed. Two inches above the incision a half-inch stab incision is made. A corrugated drain to the prevesical space and the anchor suture are brought out through this stab incision.

The rectus sheath is sutured with No. 2 catgut and the skin with about four interrupted silk sutures. These are not tied tightly to allow for post-operative œdema. A glass rod or stout rubber tube three inches long is attached to the anchor silk. The catheter is irrigated to make certain it is draining satisfactorily without excess bleeding. The vasa are then usually divided.

The main incision is then sealed with "Nobecutane", a small dressing and strapping. Pads are placed over the stab wound where any leakage may be expected to occur.

Post-Operative Treatment.

The patient returns to the ward with an intravenous infusion in progress. The purpose is to ensure adequate urinary output, thus preventing bladder clot formation. When oral intake is satisfactory, it is discontinued.

The catheter drains into a bedside bottle containing a measured quantity of antiseptic. If the catheter blocks, it is syringed, but otherwise it is left untouched. When the urine is clear or only slightly tinged with blood the catheter and anchor suture are removed. Usually this happens on the second day, but varies from the first to the fourth day.

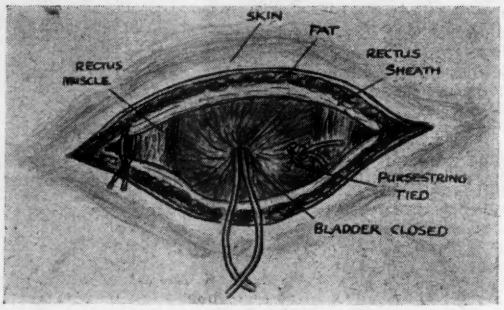

FIGURE VII.

If a suprapubic tube is present, this is removed when the urine clears. The catheter remains longer to allow closure of the gap in the bladder wall through which the suprapubic tube passed. It has been removed on the seventh day in this series. The corrugated drain is removed on the fourth day, and the sutures when indicated — usually on the seventh day.

Routine sulphonamides are used and antibiotics when necessary.

Patients are discharged from hospital when they are fit, when the sutures have been removed and when the urine is satisfactory. This usually is on the eighth to tenth day.

Results.

Of the 57 consecutive patients, all except 12 were able to leave hospital when the sutures were removed before the tenth day. Three were delayed by orchitis (despite the sulphonamides and section of the vas), two by inflamed wounds, three by general debility, one by a secondary hæmorrhage, two while awaiting accommodation and one died. Two catheters had to be reinserted. There was some stress incontinence for a few days after removal of the catheter, but control had been gained by all before discharge from hospital, although some still had an occasional "accident" on straining.

Complications.

Hæmorrhage.

This method of bladder neck suturing has given adequate hæmostasis in most cases, and a suprapubic tube has been inserted in only three cases. No patient has had to be taken back to the theatre, although this will certainly occur in the future.

Two secondary hæmorrhages have occurred. One was on the seventh day; the urethral catheter was reinserted and 42 ounces were withdrawn. The wound remained dry. The second patient had a paper-thin bladder, and his urethral catheter was still in place when the hæmorrhage occurred on the sixth day. The clot was removed via the catheter, which was removed on the tenth day. Both patients required transfusion.

There is really no reason why there should not be the usual incidence of secondary hæmorrhage with this method. Early removal of the catheter with reduction in sepsis may help, but this remains to be seen.

Suprapubic Leakage.

Much to my surprise only one patient had any suprapubic leakage. This patient drained some purulent material from the wound two weeks after operation. The nursing staff thought this may have been urine and reinserted a catheter for this and other reasons (see under "mortality").

Retention.

Two patients developed retention after removal of the catheter. Both catheters were removed on the third day, and retention occurred on the sixth and eighth day after satisfactory micturition. Catheters were passed without difficulty, over 30 ounces were withdrawn and after a few days the patients had no further trouble. Both wounds remained dry.

Infection.

The wounds have been sealed, have remained dry and have healed well. They are therefore no more liable to infection than other abdominal wounds — less so than in cases with bowel surgery, infected appendices, etc. As with all prostatectomies, the urine has contained debris and pus in most cases, and seven patients were ordered antibiotics for post-operative temperature and pyuria. All cases resolved. Orchitis occurred in three cases.

Late Complications.

Although the earlier patients have been discharged from hospital for over twelve months, it is too early to give any final impressions on this. Hryntschak had no trouble peculiar to this operation. The actual removal of the prostate is done in the usual way, and results should at least be no worse than normal. There is less chance of bladder-neck stricture than when the hæmostatic sutures do not include the catheter, since more space is left when the catheter is removed and the catgut absorbs. One patient has developed a stricture in the terminal urethra about one inch from the external meatus. His catheter was removed on the third day. Neither I nor the colleagues whom I have asked can explain this. The modifications described above can hardly be blamed for this stricture, but fortunately it is now responding to dilatation. No case of osteitis pubis has occurred.

Mortality.

One patient died.

He was aged 84 years, and had a blood urea content of 210 mg. per 100 ml. His urine was offensive, an indwelling catheter had been in place for ten days and he was considered moribund. When he did not die I was asked to see him with the idea of possible surgery. He improved with preparation, his blood urea level fell to 60 mg. per 100 ml., and he was then operated on. On the third day he was out of bed, without a catheter and voiding. An ileus developed on the fifth day and lasted five days, and when he recovered from that he seemed to have lost interest, and would not eat or drink. Urinary output fell, and when he discharged some offensive fluid from the wound, which he had been touching continually, a catheter was reinsterted to check on his output and clear his bladder. Intravenous fluids improved his output, but he suddenly collapsed while up on the sixteenth post-operative day, and was dead within an hour.

Discussion.

The method described seems to me to have several advantages. It is easier and quicker than the retropubic approach, although I have carried out more retropubic prostatectomies than prostatectomies by this method. No tilting into the Trendelenburg position is necessary, except with very obese patients, and this may be of help to the cardiovascular and respiratory systems. Average operating time is about thirty minutes, in spite of changes in assistants and theatre staff.

Preliminary cystoscopy to exclude other pathological conditions is unnecessary in most cases, because the bladder is opened and can be seen clearly, not felt with difficulty, as in the retropubic approach.

Prevesical bleeding is less, and if it occurs is more easily seen and controlled than when it occurs down behind the symphysis.

If the hæmorrhage following enucleation cannot be controlled sufficiently, a suprapubic tube can be inserted without difficulty. This should be done without hesitation if there is any doubt. With the retropubic approach, bleeding into the bladder is sometimes difficult to see, although the exposure of the prostatic cavity is better. I have sometimes been surprised to see the amount of blood in the washings after closing a retropubic prostatectomy which had apparently a dry cavity. To insert a suprapubic tube in this operation involves a separate incision, and the decision is not so readily taken. More usually one "waits and sees", and then a lot of post-operative lavage is necessary. A straight tube is used, not a mushroom-ended one, since this is removed without disturbing the sutures closing the bladder. The bladder is sutured to the rectus sheath to prevent the bladder falling away form the tube and leaking.

Early removal of the catheter is of benefit to the patient, nursing staff and surgeon. Other methods of suprapubic prostatectomy require the catheter to remain indwelling for longer periods. An indwelling catheter is unpleasant, and restricts the patient from moving around in bed. Infection increases, and bladder spasms may occur. The patient and the nursing staff are constantly watching to prevent kinking or blocking of the tubing. Wash-outs are necessary, and cross infection to other patients occurs. In the usual suprapubic operation it has been disappointing to have a dry wound leak the night before the catheter was to be removed because the patient kinked the tubing while asleep.

Seven patients had the catheter removed on the day after operation. All except three were taken out on or before the fifth day. One had a paper-thin bladder, which could not be made watertight, and his catheter was left in for a week. Another had his hæmorrhoids removed by another surgeon at the time of prostatectomy, and his catheter was left in for six days in case he had difficulty voiding. In one case bleeding was still occurring on the sixth day.

Originally, owing to caution, the catheters were left in for four or five days, but in more recent cases they have been removed much earlier. The last ten averaged less than two days.

Although Hryntschak's description does not include the use of the anchor suture, I have found it very helpful. Penile sutures are unnecessary, and the catheter is held more firmly and can be adjusted if necessary. One catheter only was displaced, and that was my fault since I had tied the anchor to one of the stay sutures on the bladder wall not to the catheter, which was therefore unattached to anything and fell out. It was replaced, and the patient had no further trouble; he was discharged from hospital on the eighth day.

Initially I thought that leakage would occur from the hole through which the silk passed when the anchor was removed. The catheter was left in place for two days after the anchor was removed to allow healing. One day the staff removed anchor, anchor suture and catheter together. There was no leakage, and this has been the routine since. Probably the valve effect of the purse-string occludes the opening.

Bladder capacity is not reduced to any extent by the purse-string suture. Most patients can void over 20 ounces when the catheter is removed. One patient passed 33 ounces in one voiding on the second post-operative

day after his catheter had been removed and the wound had remained dry. This lack of suprapubic leakage is the main advance gained from this method of prostatectomy. Wounds stay clean and dry, and the patient does not have the depression associated with the reintroduction of the catheter after he thought he was on the way to recovery.

Conclusion.

A modification of the Hryntschak suprapubic prostatectomy is recommended for those cases of benign hypertrophy in which open operation is indicated. Watertight bladder closure is the main essential of the operation. This is accomplished by a purse-string suture to close the bladder opening and the use of modified bladder neck sutures. It has the advantage of the easier access and bladder visualization of the suprapubic approach, and the early catheter removal of the retropubic method. Wound healing is better and urinary leakage lessened.

A brief description of the operation and the results in a small series of 57 cases are presented.

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Addendum.

This series now totals 127 cases. Although small compared with the series reported by Sanseverino, the results have been most satisfactory. One patient with a previous history of coronary infarctions suddenly collapsed the morning after operation while apparently well. Four secondary hæmorrhages occurred requiring transfusion, no patient had any suprapubic urinary leakage and there were two wound infections.

Catheters were removed earlier — eleven on the day after operation — and most patients left hospital before the tenth day. One suprapubic tube was inserted in a patient with severe hypertension and profuse hæmorrhage at operation. No case of bladder neck obstruction has as yet occurred. The penile stricture mentioned above has responded well to dilatation.

Both I and my colleagues who are now using this method continue to be satisfied with the results.

GERIATRICS OVERSEAS[1].

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DURING the present decade there has been a considerable growth of interest both in the medical profession and in the general population in regard to the aging process and to the problems of old people, socially, medically and economically. Much has been done in Australia, and in this State I know that showpieces can be exhibited in most fields concerning the care of elderly people, which will bear comparison with any to be seen overseas. But while it can be accepted that there are projects of world class, this does not mean that the treatment of old people is satisfactory in this country. Everyone knows how far this is from the truth.

The problem of age is the most pressing and most neglected aspect of our community life, and it is essential that more should be done to better it. The tragedy of old age is that while standards of living are rising in the community, old people are more likely to be poor, ill, neglected and friendless than they ever were in past times. More and more each year can justly claim with Macbeth that

> My way of life is fallen into the sear and yellow leaf,
> And that which should accompany old age
> As love, honour, obedience, troops of friends,
> I must not look to have.

Hutchinson's (1954) excellent survey "Old People in a Modern Australian Community" has given a detailed picture of the social and, to some extent, the medical problems confronting us in Australia. In order to formulate plans of how to deal with the situation, it is very necessary to learn what other people are thinking and doing. For this reason, it has been thought advisable to send observers overseas to learn what is going on in other countries. To spread knowledge thus gained to as wide an audience as possible is the aim of this lecture.

Definition.

Before beginning to speak of geriatrics, I must explain what I mean by the term, and as with many new words, there are many interpretations. I consider geriatrics to mean the medical management of old people—a far-reaching objective—and the study includes all aspects of old age—medical, social and economic—since they are all bound up together.

The problems are the same in all Western countries. Essentially, it is a matter of increasing numbers of increasingly ill old people. At the turn of the century, 1 in 21 of the people in Britain was over 65 years of age. In 1975, the ratio will be 1 in 7—three times the proportion—and considerably more than that in terms of actual numbers. To some extent this has been offset by a decline in the number of children over the same period, but this is not entirely so, as children are not to the same degree in need of medical and especially of hospital care.

National Approaches.

The various Western countries have differing national approaches, which can best be summarized by saying that I consider the Scandinavian the most excellent, the British the most intelligently planned, the American the most diverse and the most lavish, and that of Roman Catholic Europe the most spiritual, leaning so heavily as it does, on the charity and help of the Church.

Now, when one comes to consider why disease in old age has become a significant problem, one comes up against four facts which form the basis of the situation.

1. Modern medicine has changed the pattern of disease by abolishing or making little of the once serious diseases of young adult life. As an instance, there is the case of tuberculosis, once "the captain of the men of death" and "the great white plague", now of little more than minor importance in the list of today's serious diseases.

2. As a result of this, the general age of patients in hospitals is becoming greater.

3. With the abolition of the acute illness as a major problem, more and more people are becoming afflicted by and dying of chronic degenerative diseases.

4. A common factor in many of the cases of disease in old age is what has been called social infirmity, that is to say, the combination of lack of money, lack of friends or relatives who can or will look after the patient in his home, and general frailty, which makes it hard for the old person to continue to battle on leading an independent existence.

It is the fourth factor that determines the nature of geriatrics. Lord Amulree's definition of the scope of this field is the most succinct, and forms also the best practical basis for organization of medical services. He has stated that he considers that a geriatrician should deal with all those cases of disease in old age, the common factor of which is social infirmity. Many others have different concepts of the meaning of the word, but to my mind, this is the definition that should be universally accepted. It contains the whole *raison d'être* of the geriatrician. Only because these patients are filling more beds for acute and

[1] Read at the 1958 Victorian Geriatrics Conference.

chronic patients than the community can provide is there special need for doctors and others to concentrate on this most difficult of all medical problems—the so-called "hopeless case".

When one comes to consider what is being done overseas to deal with these problems, one soon realizes that this is an enormous field, so I propose to concentrate on description of organization of services to the aged and infirm.

British Geriatric Service.

Of all the organizations seen, the British appeared best for those old people in need of hospital treatment. There is a Ministry of Health publication (1957) which describes the organization in detail. Whatever may be the shortcomings of the National Health Scheme in other fields, there is no doubt that the standards of care provided for the elderly and of medical treatment available to them have risen since the setting up of geriatric services.

The British scheme is, briefly, to set up geriatric departments as special sections of the general hospitals. These departments are headed by men of professional status equal to that of any; they are all well-paid senior men with higher medical qualifications. Many have very good records in clinical research. Under each of them is a full resident staff. Their wards take patients with all types of geriatric disease, admitted as a rule direct from the casualty department. Treatment is along orthodox lines, and as many of their patients are in need of such treatment, physical medicine and rehabilitation play a large part.

However, they do not confine their work solely to patients in need of rehabilitation treatment; they accept any patient with acute illness with a background of age and infirmity.

This association with the hospital for acute illness has fostered a hopeful and active attitude to disease in old people, besides raising immeasurably the standard of medical care; and it is this attitude of confidence in being able to improve these patients which is the most stimulating impression one brings away after visiting these departments.

Some patients do not improve, despite the best efforts of the best physicians, and for these long-stay wards are provided. However, only a minority of patients admitted to hospital finish up in these wards. In Oxford this was no more than one in five of patients admitted. This ratio gives some indication of the sort of results that active treatment can achieve in this group of diseases.

Of course, some patients, while being able to leave hospital, do not improve sufficiently to go home, and these are placed in homes provided by local councils or private charity. There are also close links with the psychiatric services for mentally affected patients.

An indication of the arrangements and lines of liaison between these various bodies is given in Figure I, which is copied closely from a similar one drawn up by Dr. W. Morton of Nottingham (1952), an authority on the organization of geriatric services.

A feature of the British service, which is wholly commendable, is the close liaison between government services and voluntary organizations. An instance of this is the work of the King Edward VII Fund, which has established "Halfway Houses" or, as we would think of them, convalescent homes for at least a dozen of the geriatric units operating in the London area. This attitude runs through the whole service, and is aided by coordinating organizations such as the National Council for the Care of the Elderly, the main function of which is to see that services are not needlessly duplicated, and that they are encouraged in areas where they are needed.

The so-called "domiciliary services"—home help, district nursing, meals-on-wheels, chiropody, etc.—are organized on a local authority level, once again with a combination of local council and private contributions. These services enable some people to live happily at home who would, under other circumstances, have to spend their days in institutions, and the extent of them is an indication of the accent on getting the patient home again, which is the main point of the British service.

To sum up, in England sick old people are given treatment as good in every way as any other age group, and this is achieved by making the geriatric wards part of the general hospital. The accent of the medical profession is on treatment rather than on provision of custodial care.

Scandinavian Geriatric Service.

Scandinavia, and especially Sweden, has the most advanced social welfare of any of the areas visited. I can speak no more highly of it than to say that if I were old and alone I should like to live in Scandinavia. Sweden, with a static population of about 7,000,000, and thus a smaller country than our own, has built sufficient modern homes for its frail old folk to cover one-third of its estimated requirement already, and is within sight of being able to provide good accommodation for each one of its old people who asks for it, and they expect one old person in ten to do so. We in Australia are in difficulties providing accommodation for one in 100.

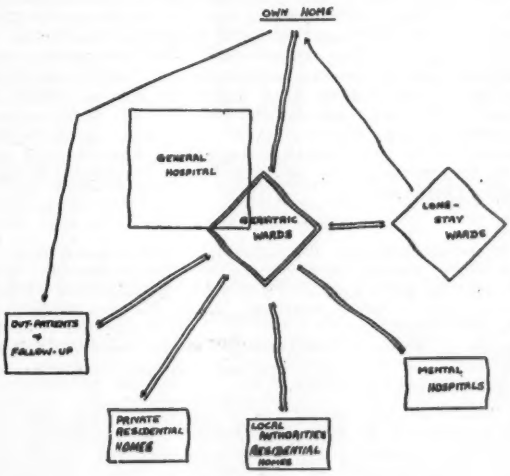

FIGURE I.
Organization of a typical British geriatric unit.

These homes are excellent, and we would do well to copy them. They appear to be built, mainly, by the local government authority, and official government policy is to make them no larger than 100 beds. They provide accommodation for the frail ambulant patient and the socially destitute patient. There is no class distinction, and one may find a cabinet minister's mother a resident of such a home. A private room with private toilet and bath and usually a small private veranda is the common plan, while there are common lounge, dining and recreation rooms.

Altogether, most of them, and I saw many, were like good hotels in the standard of luxury provided. When the people become too sick for the small sick-bay to cope with, they are dealt with by the hospital service, which is on somewhat the same lines as the British, though, from what was seen, with not quite the same integration with the general hospital. Short of this, the patient's own general medical practitioner provided medical care.

These places were glorious: part of the community, close to shops, friends and relatives, there was not the slightest sign of the depressing aura of the "institution" about them. We would do well in this country to plan our accommodation for this group along these lines.

Britain and other European countries, such as Holland, do provide homes for this type of person, but they could not compare in comfort or convenience with the Scandinavian homes. Incidentally, in Britain, the almshouses,

far from being a decaying survival from the Middle Ages, are very much of a going concern, and provide care for many thousands of frail old people.

We have seen that in Britain and Scandinavia, a strict break is made between the patient in hospital and the healthy person in need of custodial care because of the infirmity of age. This is a very fundamental and definite point in present European thinking. They deplore the setting up of large homes and institutions for healthy people, which have hospitals and nursing homes attached to them. I am sure they are right for a great many reasons, but, principally, because such a home is never able to provide modern and adequate treatment for its acutely sick patients. It becomes a second-rate hospital. In addition, the hospital section spreads slowly to include, in make-shift fashion, more and more of what was originally intended as accommodation for healthy people. In addition, the set-up of such an institution tends to obscure the prime object of treating diseases of old people—to make them fit enough to retake their place in the community.

To accomplish this, which is the great task of geriatrics, needs more than just a doctor skilled in the treatment of disease. It needs a whole team working in harmony. There must be efficient nursing, and first-class diagnostic and consultant facilities; there must be social workers available to help find ways of arranging care of the old person at home; there must be a home-help service, which can provide domestic care for the house-bound; there must be a good visiting nurse service, and there must be good liaison with the practitioners in the district. All these are in embryo here, but are better developed in many other countries.

American Geriatrics.

America provides examples of all the services so far described, though in a much more diverse fashion. There is nothing unified or uniform about geriatrics or geriatric standards in North America. There are two fields yet to be mentioned, however, and in considering the American scene these were outstanding. They are the fields of scientific research and that of community activity with regard to elderly people.

To Americans "aged" is a naughty word, and they paraphrase it by using the term "senior citizen" to an inordinate extent. The Americans are away ahead of us with organization of old people's clubs, recreational centres, adult education programmes and so on. Also, there is a very commendable change going on with regard to the community attitude to old age. The man in the street, owing to a first-class education campaign waged through television, radio and newspaper, knows what the average man of no other country knows—the truth that age is not a period of inferiority unless disease makes it so—and is thus willing to do all he can to prevent disease in old people.

But it is in research that the Americans make one envious. The fabulously wealthy National Institutes of Health—the medical research organization of the U.S.A. Government—has a special section devoted to the study of the basic biological changes occurring in the aging process, and millions of dollars are poured into research in this field by both governmental and private agencies. In many places, for instance at the Goldwater Memorial Hospital on Welfare Island in New York, there were university-staffed research departments working in the geriatric hospitals. This was producing results both of immediate value and in the basic understanding of what aging is.

I have no doubt that, with the concentration of first class scientific minds on this subject, men will, in time, be able to understand, and even possibly to halt, the progress of the aging process, thus abolishing the need for the use of the word geriatrics altogether.

Application of Overseas Developments to Australia.

How can overseas developments and ideas be applied to the Australian situation? The first thing to do is to follow the example seen everywhere overseas and accept the challenge of trying to replace every old person who becomes ill or infirm back where he or she belongs—in the community. Once this ideal is accepted, the rest follows naturally; it is to take what is best from abroad, alter it to Australian conditions, add our own ideas and form a synthesis which will be as good, or better, than anywhere in the world.

Personally, I consider that there is a danger in separation of geriatric treatment from the rest of medical care. I would make a strong plea for the close integration of geriatric hospitals with the general hospitals for acute illness. It would be ideal to follow the British lead here, and set aside wards, or at least beds, in the hospitals for acute illness and appoint geriatric consultants to look after them. The long-stay hospitals and homes need not have the same close physical connexion with the hospital for acute illness, but should, from a medical angle, remain under their jurisdiction. Present organization has gone a long way towards this in that senior men have been appointed to geriatric posts, but their departments, such as that at Greenvale, are too isolated from the facilities of a general hospital for the best possible treatment to be afforded to an ill patient.

The alternative is to set up a completely separate service for the care of the elderly, with its own hospitals, medical and auxiliary staff, homes and so on, as is the case with the Mental Hygiene Department. I am not in favour of this as there would be a tendency to attract second-rate staff and to be chronically in difficulties in attracting interested personnel into this field, which is so lacking in glamour when compared with the field of acute illnesses. At all events, there should be close cooperation between all people working in this field, and an Australia-wide organization is needed to coordinate and encourage voluntary and state-supported endeavours.

There should be a definite break between the hospitals and the homes for the frail and needy old people. This latter class of person should be accommodated in homes no larger than 50 to 100 beds. Each person should have the privacy of a single room, and there should be a sick bay for dealing only with those patients with illness who would, in happier circumstances, be looked after by relatives in the patients' own home. It is here that charitable and church organizations can be of great assistance. To build and, even more, to maintain proper hospitals is beyond the financial ability of most private organizations, but many can afford to provide first-class homes of the type described as being at their best in Scandinavia.

On a lower level yet much can be done in the provision of better domiciliary services and their extension to cover all areas of the country.

Research is one aspect of geriatrics where Australians deserve reproach. Very little work has been done here, whereas in many other fields of medical research we lead the world. It is certainly only a matter of time before our universities and scientific research institutions turn their attention to this, which is one of the last of the great puzzles facing biologists today: what is aging?

Conclusion.

Overseas observation of geriatric services has shown that no one country has a perfect service. Great Britain, Europe and America each has some aspect in which it excels.

I have attempted to distinguish the important features in each, but there is one idea prevalent everywhere: an old person with a chronic disease, who has been admitted to hospital, is not beyond hope of cure, and determined and intelligent treatment can more often than not get him back where he belongs—at home.

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CLINICAL ADVANCES IN GERIATRIC PSYCHIATRY.

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AT the Alfred Hospital, Melbourne, immediately after the first World War, a group of us were attempting, as resident medical officers, to redeem the years that the Kaiser had eaten. One of our favourite off-duty pastimes was to obtain a blank admission card and fill in a fictitious name and provisional diagnosis of a new patient. It was considered well worth while staying up to witness the dismay on a colleague's face when he read that, while he had been happily sharing an evening at the theatre with an attractive nurse, the only vacant bed in his ward had been occupied by a man, aged 80 years, suffering from osteoarthritis and probable arteriosclerosis of the brain.

There is much to be said for Jung's theory of enantiodromia, which emphasizes the tendency we all have to end up by holding entirely different views from those we held when we started out. The present interest in geriatrics appears to be more than compensating for the ambivalent attitude towards the aged of some recent graduates of forty years ago.

Classification of the Mental Disorders of the Elderly.

The traditional and simple classification of the mental disorders of the elderly was into three categories—presenile dementia, arteriosclerotic dementia and senile dementia. This was too circumscribed, and led to many unnecessarily gloomy prognoses, as it tended to emphasize that there were always organic changes in the brain and "Well, you can't do anything, anyway".

If a patient admitted to a mental hospital was aged over 60 years he was senile, so could not suffer from a presenile dementia. If he had no obvious physical signs, and no history of cerebro-vascular accident, he was probably not arteriosclerotic, so many ran the risk of being labelled as suffering from senile dementia, and inferentially hopeless.

Roth (1955) brought fresh light on the problem of classification, and his contributions to this field have been invaluable, especially in pointing out the importance of diagnosis in relation to prognosis, and the much more favourable outlook in the psychogenic or affective disorders compared with the organic. His usual classification is: (i) affective psychosis, (ii) late paraphrenia, (iii) acute confusion, (iv) arteriosclerotic psychosis, (v) senile psychosis, (vi) miscellaneous (a group of secondary dementias). From experience of male patients in this hospital, it seems appropriate to add as a separate class: (vii) psychosis following a long history of chronic alcoholism.

Linden (1956) draws attention to some of the milder mental disorders of the senium, such as simple senility, character changes and late senescent neuroses.

The Potential Patient.

The fact that people aged over 60 years are being admitted to mental hospitals in Australia two and a half times as often as their proportion in the population, leads to inquiries why this is so.

In senescence, for most, there are a number of changes for the worse that can occur to an individual about the same time. A body which has served one fairly well for fifty years of adult life may now commence to feel the stress and distress of the accumulated years. Sight, hearing, motility, wind or general physical endurance may begin to fail for some. Compulsory retirement at the age of 65 years is the rule for many, and means reduced income, reduced interests, restricted social contacts and loss of status. The picture of unsuccessful aging, with loneliness and rejection by society, industry and the family, has become a subject of wide interest and is, of course, true for many.

Added to this part of the general background, we note the national history through which these elderly people have lived. This takes in the economic depressions of the nineties and the thirties, corresponding to the childhood of themselves and of their children, and the two World Wars. Finally, for many there is the financial confusion caused by inflation and the realization that their savings of a lifetime are inadequate. They are perplexed that, although they have worked hard all their lives, the apparently good times they see others enjoying are not for them.

Ætiology of Mental Ill-Health of the Elderly.

Sex is of importance for several reasons. Women live longer than men, so there are many more women in the age group concerned. They tend to have more restricted interests with age. They are more emotionally affected by non-cerebral illnesses than men.

On the other hand, in two small series of geriatric patients admitted to Mont Park, it was found that among men aged over 60 years 40% of first admissions to a mental hospital were attributable to chronic alcoholism. These patients differed from the familiar type of younger alcoholics, in that they had been able to carry on without mental breakdown until their chronic alcoholism, *plus* senescence, finally beat them.

Apart from such sex variations, the two great divisions in ætiology are organic and psychogenic. In the classification used, alcohol, arteriosclerosis and other brain damage were organic, and the other subdivisions (leaving aside senile dementia itself) psychogenic.

When one considers the individual case it is not easy to define the ætiology in a clear-cut way. As Rothschild (1945) puts it:

> In some cases it is possible to say that the tissue damage per se does not necessarily produce a psychosis but rather the person's capacity to compensate for the damage.

From experience one knows that the influence of various factors in causation is extremely evasive, yet in every case there must be a complicated ætiology. To find a satisfactory method to assess the importance of the numerous contributing reactions and conflicts, is not easy. It seems clear that these elderly people, although each one's experience in life has been unique, have all encountered test situations producing emotional stress.

Senescence is the time when defence mechanisms are apt to be weakened, and when there are also all the more past conflicts to be reactivated.

Last year, 50 successive patients aged over 60 years admitted to Mont Park, entering a mental hospital for the first time, were studied from the ætiological standpoint. The history taking and examination were far from complete, but some information about the patient's background was always obtained. All had lived through at least 60 years of the same span of the nineteenth and twentieth centuries. In nearly all these 50 cases both emotional and organic factors emerged. One of these histories was as follows:

A female patient, aged 62 years, was admitted to Royal Park in June, 1957, and to Mont Park the same week. She was an only child, both parents had died of "strokes", the father when the patient was nine years old. The informant was the patient's daughter, who said the patient and her mother were left well off and she was brought up as a spoilt only child. The patient's mother travelled all over Australia sightseeing throughout the patient's school-days, with her as companion, so that she was never at one school for long. She married when she was about 20 years old a well-to-do man, and they had two children, and a happy home. Her husband had some financial losses in the financial depression, but not enough to interfere with the nice home. The patient always took it for granted that everything she wanted would fall into her lap. She made good social contacts, and was fond of dancing and bowls. Both her children married young. Four years before her admission to hospital her husband had a serious hæmorrhage, and in the same week her daughter lost her baby and the son brought home the news that his wife had left him. From then she began to be forgetful. A three months' holiday in Queensland did not improve her, and

on her return to Melbourne a specialist said she should have electroconvulsive therapy, which the family declined. A year later — three years before her admission to Mont Park — her daughter stated that the same specialist said nothing could be done — the brain had gone. Since her admission, in spite of all treatment, she appears to be becoming slowly demented with most of the signs of cerebral arteriosclerosis.

No reliable method of allotting points to various factors in ætiology in these cases could be found. If 10 points were allotted to each case to be distributed among causative factors, I imagine that each observer would distribute the points differently. A senior psychologist at our Research Institute found that each time she attempted to do so, her own allotment varied. I returned from my interview, realizing how complicated this subject of ætiology is, and took refuge in adapting some Gilbertian words:

> Quixotic is the enterprise, and hopeless the adventure is,
> To seek for ætiologies that always lie deep hid.
> Kind man who's psychoanalysed his friend for fifty centuries
> Gets tangled in the conflict — "Super-ego" versus "id".

Before leaving this subject of causation, one may ask, is there any iatrogenic factor in any of these disorders under consideration? There is, for all of us, some truth in the quip that the really old are those who are 10 years older than ourselves, and it is possible that at times any of us may give the impression to a patient that if he is 60, 70 or 80 years old, he should not expect very much in the way of improved health. One of the leading centres of medical teaching in Melbourne recently described a man of 62 years as old, and an eminent psychiatrist remarked in his letter of introduction that a patient of 71 years who was suffering from melancholia "realized that his life was drawing towards its close". Two months later, after leucotomy, the patient went off enthusiastically to embark on a new avenue of work.

Fundamentally it is not easy to separate causes from symptoms. In many instances, though careful investigation is made, what at first sight appear to be obvious causes, such as poor financial state, bad family relations and loneliness, may turn out to be repercussions of a maladjusted personality. In spite of this, research into ætiology must proceed along well-organized scientific lines, and the reward to the individual and society will be great.

Clinical History.

Perhaps in no type of illness is a good history so important as in geriatric psychiatry, and at the same time it is often tantalizingly evasive. Often the patient can give quite a lot of information. Sometimes the best informant is the spouse. Often there is no spouse, and the children can give only an outline of the later years. In many cases the combination of a child and a sibling provides a fair picture of the life history. Information may be sparse when the patient is single, and the only available informant is an even older sibling who enjoys the interview, but insists on talking about himself instead of the patient.

In geriatric psychiatry, the term "rejection by the family" is often used, but some families show surprising examples of cohesion and lead one astray.

A female patient, aged 69 years, was admitted to Royal Park and Mont Park during March, 1957. She was born in Italy, and had been in Australia for 40 years. Her husband still worked, though he was elderly. They had their own home. They had four children, all married, with their own grown-up children, and all were good to the patient and her husband. She had been complaining of rheumatism in her legs for months, and said she could not walk. The daughter informant stated that the patient had had a shock six months earlier when a niece, who lived with her, ran away from home. The patient had never been herself since. Frequent changes of environment did not help her. Previously she had spoken good English, now it was poor. She was suicidal and would not eat. A week after her admission she complained of "pain in the heart" because her husband was sick at home "and I want to nurse him". She used to emit short shrieks, but her agitated depression cleared up with electroconvulsive therapy, and she was discharged home, fairly well, in June, 1957. She returned in August, much as on her first admission, and the daughter was cross-examined about the home situation, and admitted that the previous information she had given was wrong. The only son, aged 41 years, was at home. He was a congenital mental defective, who could not hold a job for long, and was a constant source of anxiety to the patient. Arrangements were made for him to seek help at a psychiatric clinic, and he was admitted to hospital. The patient was soon after this allowed home again, and had not returned by March of this year.

Undoubtedly there are occasions when, in the immortal words of Pooh Bah, "family pride must be denied, and set aside and mortified", for everyone's advantage.

Something of the patient's parents' background is of course useful — number of siblings, place in the family, atmosphere of the home, schooling and first jobs. All these are worth knowing if the information is available, as many of these patients recall earliest events most easily. It gives a background to any possibility of the older patient's having successfully concealed a psychoneurotic tendency for 50 years, only to have it revealed under the stress of senescent physical and emotional changes. Spouse, in-laws, children, occupation, retirement, financial reverses, illnesses of self and family, separation from children, loss of spouse and many other individual factors — any of these may lead up naturally to the precipitating situation in those cases which are totally or partly psychogenic.

To have such a life summary, and a history of the patient's immediate illness from the referring doctor or hospital soon after admission to a geriatric ward, is immensely helpful. In most cases the patient, or at least his family, realizes that the anxious journeyings between home and family, doctors and other hospitals, are for some time at an end, and that those caring for the patient at the final point of retreat and security will begin their endeavours towards restoration of health, completely armed with a knowledge of the individual's past and present.

Prognosis.

The average geriatric patient, in a mental hospital, has been brought by his family, who have been through much emotional turmoil themselves. In many cases they have regarded the admission of the patient as a final irrevocable step. He has at last been "put away".

At the first interview with the family, it is good to tell them that, at the present time, one-third of all patients who are admitted to mental hospitals for the first time, aged 60 years and over, become well enough to return home. This cheers up some, and lets others know that, even if they thought so, their responsibility is not at an end.

The more psychogenic the illness, the better the outlook. A recent depression, especially of the reactive type, has a good prognosis. This is probably true of the natural history of the disease, but also because of the available lines of treatment.

Elderly alcoholics often do well, when alcoholism has been the precipitating factor, and when neither Korsakow's syndrome nor a severe arteriosclerotic psychosis underlies it. Some of these reach the "burnt out" stage, and if they are discharged from hospital do not return, as do their juniors.

Confusional states which have supervened on physical non-cerebral disease, sometimes have a happy knack of clearing up with the successful treatment of the primary illness.

These are some of the cases which help to offset the grimmer disorders. Those with a long history of difficulty in coping with life's problems may be drifting on to dementia, some directly to a senile dementia and some via arteriosclerosis. Linden gives everyone a chance of recovery except those suffering from senile dementia vera, which will respond to nothing, physical or psychiatric. Roth (1955) defines senile psychosis as follows:

> A condition with a history of gradual and continually progressive failure in the common activities of every-day life, and a clinical picture dominated by

failure of memory and intellect and disorganization of a personality, where these are not attributable to specific causes, such as infection, neoplasm, chronic intoxication, or cerebro-vascular disease known to have produced cerebral infarction.

This emphasizes that no patient should be labelled as a case of senile psychosis until it has been ascertained that the course of the illness is one of gradual and continually progressive failure. The impression has been gained that constitutional weakness is a predisposing factor.

A man was admitted to hospital in September, 1954, at the age of 77 years. He was mentally enfeebled and markedly deluded. He was disorientated and talked nonsense. He was doubly incontinent. He was taken home on "trial leave" in May, 1955, and readmitted to hospital in April, 1957, with the history of being childish, abusing neighbours and locking his aged sister in her room, etc. He was found to be quite demented — "says he and his brother are both dead". He quickly went down-hill physically, and died in two months after his second admission when he was aged 80 years. The history supplied by the family lawyer showed that he came from a family of five siblings, who had all remained single. They all had inadequate personalities and hung together for mutual support. The patient had been a wheelwright with a large ironmongery firm, which closed down his department in 1929. He was an efficient tradesman, but did not work again. He did not want to learn a new trade. He had enough money to live on, but not enough to support a wife. The deaths of three siblings affected him deeply, and he became worried about family affairs prior to his first admission to the hospital.

Treatment and Management.

The Infirmary Ward.

The infirmary ward will shelter patients who have been in hospital for a varying length of time, and some may have spent almost a lifetime there, and now suffer from the infirmities of age. In these wards it is not the psychiatric illness, whether long or short, that determines ward admission, but the degree of physical disability. There will always be a large number of geriatric patients who require special nursing for non-psychiatric disorders in mental hospitals; but those of special interest are the ones whose first mental breakdown has not occurred until the age of 60 years.

The ward rule must be not to allow them to remain too long in bed. The more these patients are in bed, the more pressure sores are likely to appear, the greater the incontinence rate, and the greater the risk of joint contraction. The first stage is to get them out of bed as soon as possible, but not to be satisfied with their sitting all day on a low chair near the bed, or being wheeled out to the day-room or veranda. By increasing the active movements of patients in one infirmary ward of about 60 patients, the nurses were able to reduce the incontinence rate from 50% to 17%.

The question of ambulation in the ward is of great importance. The handicap in most cases is joint contraction, the most troublesome joints being the knees and sometimes the ankles. Contraction may occur from several causes; those most often in evidence are post-traumatic, hemiplegic, arthritic and simply postural. The work and influence of a physiotherapist in these wards are most important; the nurses can learn from her how much passive movement a contracted joint can have, and what active movements should be insisted on in spite of lack of cooperation by the patient. It is probably the lack of cooperation in patients in our mental hospitals which marks them off from those who do better in other geriatric units.

The postural contractions are the most easily prevented and at the same time the most frequently occurring of these handicaps to ambulation. Some patients learn to push a chair in front of them as a walking aid, others progress from the support of two nurses to that of one nurse and a walking aid. The four-stick walking aid has been most useful. Exercise to the lower limbs while the patient is lying down by pressing the feet down on to a footpiece attached to a spring has also been helpful.

Fractured hips, especially in elderly immobile female patients, have always been a problem, and are frequently fatal. Some of our patients are suitable for surgical treatment by nailing, others are not. Modern views ascribe the osteoporosis, which predisposes to the fracture, to inactivity and the absence of sex hormones. These latter are being used in a combination of male and female hormones, often combined with vitamins and iron, and the wholesale firms are in keen competition to gain this comparatively new and lucrative trade which, fortunately for them, extends beyond the mental hospitals.

In spite of the antibiotics, pneumonia in a terminal form of bronchopneumonia remains one of the chief causes of death; but the realization that the blood supply to the lungs is poor in these patients, and that consequently large dosage is required, is prolonging some of their lives. There are some patients in the infirmary ward who, as they become physically weaker, are less disturbed mentally, and sometimes their families will arrange for them to spend their last days out of a mental hospital.

Early Treatment Ward for Non-Infirm Patients.

Our present aim is to keep the newly admitted elderly people who are ambulant and comparatively physically well out of the infirmary wards, where some of the long-stay occupants give the new arrival and her family a somewhat sombre view of the mental disorders of the elderly.

In a ward devoted to active psychotherapeutic work, the atmosphere can be bright, and a feeling of cooperation between the nursing staff, the occupational therapist, the physiotherapist, the chaplain, the patient's family and the doctor, is easily engendered. The morale of the unit can often be gauged by the facial expression of the charge nurse. Even an old ward, architecturally speaking, can be brightened with pictures and posters on the walls, flowers, music, wireless and television. From the first contact with the patient and her family, the staff demonstrate a strongly optimistic personal interest in the new arrival. If the history of the patient appears incomplete, a suggestion that someone may be able to help with the additional information is made. There is great scope for the social worker in all these cases, both in assisting to obtain a complete history and in investigating the possibilities of placement when treatment has been reasonably successful.

The trend of occupational therapy towards group activity is right for these patients. The more cooperative, who are the most likely to join in, are often the depressed and withdrawn, and it is better for them to be sitting around a table together, making children's scrapbooks, than to be stuck in a corner knitting washers. No question arises of any of these female patients learning a new trade, so that helping in the ward in any type of domestic work is always encouraged by the nursing staff, as the best result to be achieved for any of these patients is that they return to their own housekeeping duties at home. It may be found that a larger cooking stove than is generally supplied to wards may be an advantage for this type of patient, and possibly the preparation of the two smaller meals of the day, at least, might be undertaken in the ward.

Group psychotherapy at a superficial level has been attempted. We have had a group of about eight meeting for about three-quarters of an hour twice a week, with the doctor and charge nurse. The two staff members usually have to start the conversation and lead it on to subjects of interest to all. So far, the greatest success has been in bringing any member, who has shown a disinclination to attend, into participation in the discussion. The members of the group must not be too physically infirm, not incontinent, not too deaf, not too agitated or demented. In fact, they must have a psychogenic origin for their illness, and be able to sit on a chair for three-quarters of an hour.

Early in their stay in the ward, a thorough physical examination will take place. Anæmia, diabetes, a mild degree of heart failure, hypertension, nephritis and urinary infection will all be looked for and treated if

necessary. Drugs are cautiously used, with instructions to the senior nursing staff that they are allowed full discretion to suspend the drug till the doctor's next ward round if they think it wise to do so. One learns to administer reserpine to elderly people with great caution, and the psychiatric dosages used for young people are unsuitable for a geriatric ward. For withdrawn, depressed senescents it is never indicated, except in the smallest doses used for hypertension. For disturbed, restless, active old patients, moderate doses—say 1 mg. three times a day—may sometimes be used under constant observation. The side effects, which are regarded as reversible in youthful schizophrenics, are often irreversible with very short notice in these elderly people who do not eliminate the drug quickly enough. Slowing of the circulation, vasodilatation and hypotonia may quickly and silently pave the way for the onset of a cerebral thrombosis or pneumonia, which is announced at the subsequent inquest as the cause of death. One can only conjecture the possibility of entrancing new plots in popular detective fiction if Agatha Christie's husband had been trained as psychiatrist instead of an archæologist.

Chlorpromazine has a wide field of usefulness among the elderly psychotics, and individual dosage varies; but 150 to 225 mg. per day is what is mostly prescribed. On these doses, reactions must be daily looked for, and disturbed patients who in a few days become listless and look fatigued usually require suspension of the drug. Occasionally an elderly woman has fallen down in the ward garden, and sometimes one is called to a ward to examine a patient who has become weak and cold and may appear to be suffering from a cerebro-vascular accident. The hypothermia, hypotonia and tachycardia, which are usually found, can be alarming, and occur at times with little warning. Ephedrine and cortisone and its newer preparations have been found useful in these emergencies. With both reserpine and chlorpromazine extreme watchfulness is required in hot weather, when elderly patients are receiving psychiatric doses.

Electroconvulsive therapy is of great assistance in selected patients. One has to decide, in cases in which there is a depressive element in an elderly person with arteriosclerosis, whether to take the slight risk of precipitating a cerebro-vascular accident. However, there is no question of the great value of electroconvulsive therapy in many of the functional psychoses of the elderly. Age, of itself, is no contraindication. Usually the family are glad to give their consent when the prospects are explained, and for selected patients, who have been observed over weeks or months, their physical health having been built up in the meantime, the risks are slight.

Leucotomy has a distinct place in the treatment of these people. My experience has been small, as most of the more eligible patients have been selected before they reach the geriatric wards. In depressions of later life which have not responded to electroconvulsive therapy, the operation sometimes achieves much, irrespective of age. For those patients who are definitely arteriosclerotic as well as depressed, and who show confusion following one or two applications of electroconvulsive therapy, leucotomy should be considered early. At this age, when the expectation of life is short, it is probably better not to delay so long as might be done with younger patients with a similar disability. There is less to lose, and the object of treatment is to allow them to live their remaining years in a calmer mental state.

Subcoma insulin treatment has been useful in a few selected cases. It is particularly applicable to those whose physical health has deteriorated as a result of their mental illness. Some were patients with an agitated depression who had not responded satisfactorily to any of the other non-surgical methods of treatment, and who for various reasons—including objection by relatives—were not presented for leucotomy.

Preventive Approach.

Research into the degenerative disease of later life is proceeding all over the world, and may lead to our grandchildren's having healthier arteries than many of our generation have.

Socio-economic aspects and family relationships require investigation. A small but well-controlled survey of both psychogenic and organic factors in ætiology is now in progress, and probably much work of this nature will be done throughout Australia in the next decade.

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Reports of Cases.

NEURO-PSYCHIATRIC COMPLICATIONS OF MECAMYLAMINE THERAPY.

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ALTHOUGH the occurrence of psychiatric symptoms in hypertensive patients treated with preparations of *Rauwolfia serpentina* is widely recognized, the capacity of mecamylamine, a ganglion-blocking agent, to alter brain function is not so well known. Since this potential side effect is of considerable interest and importance, a case is now reported in which mecamylamine induced an hallucinatory agitated state associated with coarse involuntary movements.

Clinical Record.

The patient, a female aged 58 years, had had pre-eclamptic toxæmia with her first pregnancy 24 years ago, but had remained well during two subsequent pregnancies. In February, 1953, her blood pressure was recorded as being 260/140 mm. of mercury, and in October, 1953, she attended the out-patient department of this hospital complaining of dizziness, blurred vision, headache and nausea. The blood pressure was found to be 290/150 mm. of mercury, and there was clinical evidence of cardiac enlargement and of moderate hypertensive retinopathy.

Investigations in hospital at this time furnished the following results. Examination of the urine disclosed a light cloud of albumin and occasional granular and hyaline casts. An X-ray film of the chest showed enlargement of the left ventricle and unfolding of the aortic arch. The blood urea level was 31 mg. per 100 ml.

Treatment, subsequent blood pressure readings and later therapy are detailed in Figure I.

In February, 1957, a vitreous hæmorrhage occurred in the right eye, and in October, 1957, she was readmitted to hospital with acute left ventricular failure. Radio-

graphic examination of the chest confirmed the presence of left ventricular enlargement, and a cardiogram furnished a left ventricular strain pattern. The blood urea level, estimated on two occasions, was 33 mg. and 30 mg. per 100 ml. Digitalis therapy was commenced and hypotensive treatment changed to mecamylamine. With a dose of 12·5 mg. daily, the blood pressure became stabilized at 210/120 mm. of mercury, and the patient was discharged from hospital. She thereafter attended the out-patient department, where the dose of mecamylamine was gradually increased until by April, 1958, 90 mg. of mecamylamine per day were being taken (Figure I).

In May, 1958, abdominal pain, vomiting and constipation developed. On June 14 she began to experience auditory and visual hallucinations; she heared voices without, however, ideas of reference, and imagined that her son was standing beside her bed. On the following day involuntary movements and trembling of the limbs commenced. She was readmitted to hospital on June 17 when, in addition to these abdominal and neurological symptoms, she complained of extreme dryness of the mouth and of being unable to see clearly.

The patient was found to be emotionally labile, agitated and extremely restless. Although the sensorium was slightly clouded, orientation in time and space was not impaired. In addition to choreiform movements, a coarse tremor involved all the limbs, face and jaw, and rendered speech indistinct.

The blood pressure was 240/140 mm. of mercury in both recumbent and erect postures. The heart was clinically enlarged, a systolic murmur being audible at the apex. Examination of the lungs revealed no abnormal features. There was no abdominal distension, but the colon was readily palpable and was loaded with fæces. The pupils were dilated and reacted poorly to light and on accommodation. Ophthalmoscopic examination revealed narrowed arteries, with calibre variation and exudates and hæmorrhages, but no papilloedema. Whereas on her previous admissions to hospital the tendon reflexes could be elicited only after reinforcement, they were now hyperactive. Both plantar responses were equivocal, and Hoffmann's sign was negative on each side. There was no sensory impairment. Nystagmus was not elicited, and the tremor which was present when the limbs were at rest was not increased by voluntary movement. Muscle tone was normal; there was no rigidity of proximal or distal muscle groups.

Investigations performed gave the following findings. The blood urea level on her admission to hospital was 52 mg. per 100 ml., falling within a few days to 33 mg. per 100 ml. Serum electrolytes were reported as follows: sodium, 135 mEq/l.; potassium, 4·1 mEq/l.; chloride, 87 mEq/l.; carbon dioxide combining power, 30 mEq/l.; calcium, 9·0 mg. per 100 ml.; phosphorus, 3·7 mg. per 100 ml. The serum protein content was 6·7 grammes per 100 ml., with a normal electrophoretic pattern, and liver function tests gave normal findings. Examination of the urine disclosed no abnormal constituents, and intravenous pyelography resulted in normal excretion of dye from each kidney. A cardiogram indicated left ventricular strain.

The dose of mecamylamine was reduced from 90 mg. daily to 30 mg. and the drug was then discontinued. No significant alteration of blood pressure occurred, and by the third day after her admission to hospital the hallucinations, tremor and other side effects had disappeared.

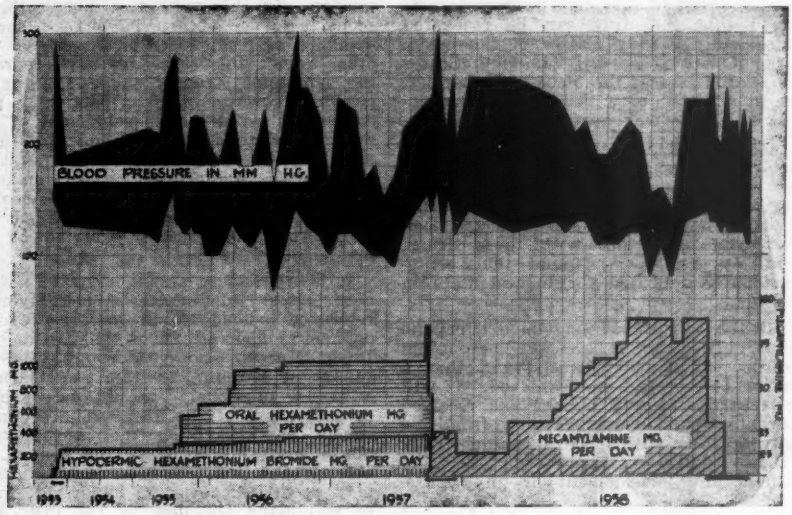

FIGURE I.
Therapy given and blood pressure response, 1953 to 1958.

After an interval of some 14 days mecamylamine was reintroduced as a provocative measure, 45 mg. per day being given orally. Within 24 hours the agitation, tremor and vomiting recurred, to cease again on withdrawal of the drug. The patient was subsequently given reserpine and chlorothiazide, and on discharge from hospital her blood pressure was 220/110 mm. of mercury.

Discussion.

The neurological features presented by this patient have been described in relation to mecamylamine therapy by others (Table I). In addition, gastro-intestinal side effects are not uncommon, and it has been suggested by Zaimis and her colleagues (1957) that these may be partly due to ganglion blockade and partly to direct depression of smooth muscle. In our experience vomiting may be controlled by centrally-acting drugs, and it may therefore in some instances be a central effect.

In the patient reported here, vomiting, agitation, restlessness, choreiform movements, tremor and hallucinations became apparent when the patient was receiving mecamylamine. These symptoms were relieved on withdrawal of the drug, and were reproduced when mecamylamine was again given, being once more relieved when the drug was withheld. It therefore seems reasonable to ascribe these symptoms to mecamylamine therapy.

TABLE I.

Analysis of Reported Cases of Neuro-Psychiatric Complications during Mecamylamine Therapy.

Author.	Number of Patients Reported.	Symptoms.				Dosage of Mecamylamine. (Mg./Day.)
		Agitation.	Tremor.	Convulsions.	Mental Changes.	
Schneckloth *et alii* (1956)	7	6	7	2	2	10 to 70
Perry and Schroeder (1957) ..	8	2	7	—	6	48 to 430
Deming *et alii* (1957)	2	2	2	—	2	20 to 70
Harrington and Kincaid-Smith (1958)	4	1	4	—	4	60 to 65
Present case	1	1	1	—	1	90
Total..	22	12	21	2	15	—

Milne and his associates (1957) have shown that toxic doses of mecamylamine given to rats may produce tremor and convulsions, and that the drug can be recovered from both the white and the grey matter of the brain. Similarly, the work of Zaimis *et alii* (1957) indicates that mecamylamine readily crosses the blood-brain barrier. This suggests that in addition to a peripheral ganglion-blocking effect, mecamylamine may have a central action.

In this respect mecamylamine, a secondary amine, differs from the tertiary amines, hexamethonium and pentolinium. We have not been able to trace the occurrence of agitation, tremor and mental disturbances with methonium compounds, nor have these side effects been encountered in our own experience with these drugs. Indeed, Clarke and Murphy (1956) found that pentapyrrolidinium occasionally improved the mental state in malignant hypertension.

It is possible that the absence of such side effects is due to the fact that only about 20% of the methonium compounds is absorbed when taken orally, and that a sufficient concentration is therefore not achieved. It will be noted, however, that the present patient had received hexamethonium parenterally in doses varying from 260 mg. to 380 mg. daily together with hexamethonium orally (250 mg. to 980 mg. daily) from October, 1953, to October, 1957, without the development of any neurological sequelæ.

From the cases reported in the literature it is likely that effects on cerebration occur only when high doses of mecamylamine are employed or when renal excretion is impaired either by structural change in the kidney or in the presence of an alkaline urine (Deming *et alii*, 1957). On the other hand, doses in excess of 90 mg. daily have been employed without untoward effects. Thus, Turner and his collegaues (1957) have reported the use of doses of 92·5, 97·5 and 120 mg. daily, and Perry and Schroeder (1957) refer to a patient with azotæmia who took 150 mg. daily for four months without toxic effects.

It is thought, however, that with regard to the dosage of the drug, body weight must be taken into consideration. Our patient was a slightly built woman weighing 6 stone 3 pounds, and it is reasonable to assume that a dose of the drug which would prove toxic to her may be given to a patient weighing 12 stone without ill effects.

Although in many of the reported cases there has been a considerable degree of axotæmia or of atherosclerosis, in the present instance there was no obvious impairment of renal function. Similarly, many of the patients who developed tremor and psychotic reactions with mecamylamine therapy have been in the pre-malignant or malignant phase of hypertension. Clarke and Murphy (1956) have reviewed the neurological complications of malignant hypertension, and although seizures, progressive dementia, schizophrenic symptoms, emotional lability, confusion and memory defects may be encountered, these authors do not refer to the pattern of symptoms reported as being associated with mecamylamine therapy. Clarke and Murphy considered that cerebral arteriosclerosis and other senile changes might be an important factor in the production of mental changes in malignant hypertension. In this patient, although there was ophthalmoscopic evidence of arterial change, there was no clinical evidence of focal vascular disease of the brain. On the other hand, the reversible and reproducible nature of the symptoms strongly suggests a toxic basis. It seems possible, however, that a particular pre-existing mental state may favour the development of psychotic reactions to mecamylamine therapy, and that this may be organically determined by vascular degenerative change or may be inherent in the constitutional make-up of the patient. It may therefore be of significance that the patient reported here was always regarded by her family as being "nervous", readily worried by trifling difficulties and emotionally labile.

It is difficult to assess accurately the incidence of the neurological side effects of mecamylamine therapy. No reference is made to the occurrence of tremor, agitation or mental aberrations in the papers of Gilchrist (1956), Doyle, Murphy and Neilson (1956), Smirk and McQueen (1957) or Kitchin, Lowther and Turner (1957), and we have not previously encountered such symptoms despite extensive use of the drug. The occurrence of rare toxic effects, particularly as they appear to be reversible, is not a contraindication to the use of an otherwise valuable preparation. The recognition that such symptoms may occur is, however, important, and the advisability of increasing the dose of the drug to potentially toxic levels in patients who have shown little or no response to more average doses is open to doubt. In such instances the possibility of alternative régimes should be considered.

Summary.

A patient suffering from hypertension, who developed vomiting, agitation, restlessness, choreiform movements, tremor and hallucinations whilst taking 90 mg. of mecamylamine daily, is reported.

It is suggested that these neuro-psychiatric side effects are referable to the capacity of mecamylamine to cross the blood-brain barrier and to exert a direct effect in the central nervous system.

The occurrence of this uncommon side effect of mecamylamine therapy may be influenced by the dose of the drug in relation to the patient's weight, by impaired renal excretion and by the pre-existing mental state of the patient.

Acknowledgement.

We are indebted to Professor J. H. Tyrer for his advice in the preparation of this report.

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EMERGENCY AORTIC VALVOTOMY.

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IT is probably correct to state that the only end to the spontaneous onset of ventricular fibrillation, in a person suffering from a high-grade calcific aortic stenosis, can be death. If this statement is accepted, then the subject in the case to be described must be regarded as having died. The moment she was overcome and the place in which she was stricken were the vital factors in her resuscitation.

Clinical Record.

The patient, Mrs. A., aged 54 years, was admitted to St. Vincent's Hospital on April 16, 1958. Her symptoms had begun three years previously with exertional dyspnœa. They progressed, and syncopal attacks occurred. Finally, she developed angina, which ultimately became disabling on the slightest exertion.

Examination revealed the typical signs of aortic stenosis. The blood pressure was 115/105 mm. of mercury. The left ventricle was hypertrophied and the aortic valve was heavily calcified. The electrocardiogram showed marked left ventricular hypertrophy. The signs were so gross, and the indications for surgery so compelling, that the usual left ventricular puncture was omitted.

Operation was arranged for May 8, but on the night of May 7, the patient experienced a fading-away feeling, associated with a fall in blood pressure. The electrocardiographic pattern was inconclusive, but in view of the possibility of a coronary episode, operation was cancelled. Slow improvement took place, and operation was arranged for June 26.

On that morning, in the anæsthetic room, the patient was noted to be drowsy and comfortable. She was wheeled into the operating theatre and placed on the operating table, preparatory to the setting up of an intravenous infusion and the attachment of the electrocardiographic electrodes.

It is customary in these cases for the surgeon to have scrubbed up before induction of anæsthesia is begun, but he had not done so when the anæsthetist, Dr. Brian Dwyer, went to the patient and explained his procedure to her, saying: "I am going to place a mask on your face." As he said this the patient appeared to have a fit. No anæsthetic had been administered, and about fifteen seconds elapsed before it was realized that she was pulseless, with widely-dilated pupils.

The chest was opened with a left intramammary incision, the ribs were widely spread and the pericardium was opened. The heart was in ventricular fibrillation. No time was wasted in endeavouring to defibrillate, for it was realized that the only chance of success lay in relieving the severe left ventricular obstruction at the aortic valve. An incision was made into the left ventricle, and an aortic valvotomy quickly done. An effective aortic opening was obtained with a mechanical dilator. The ventricular incision was closed. The heart was then massaged and successfully defibrillated with one shock of 240 volts. It reverted to ventricular fibrillation three times, but each time was successfully defibrillated with one shock of 240 volts. The entire procedure occupied about six minutes.

After half an hour, it became unlikely that the heart would revert to ventricular fibrillation and the chest was closed. Towards the latter end of the closure, a little anæsthetic was given.

During the first six post-operative hours, typical cerebral irritation was present. This completely disappeared within twenty-four hours. From then on, recovery was uneventful. The patient was allowed up on the ninth post-operative day. Her blood pressure was 150/90 mm. of mercury, a marked improvement on her pre-operative figure of 115/105 mm. of mercury. She was discharged 30 days after operation.

She was last seen on January 12, 1959, just six months after operation. She had a small sinus at the anterior end of her wound. Her blood pressure was 125/80 mm. of mercury. She was symptom-free and living a normal life.

Comment.

There are many lessons those of us associated with this case have learned. None of us want further proof of the principle so forcibly enunciated by Brock, that when the obstruction is relieved, only then does the heart have a chance.

Reviews.

Ophthalmic Plastic Surgery. By Sidney A. Fox, M.S., M.D., F.A.C.S.; Second Edition, 1958. New York and London: Grune and Stratton. 10" x 6¼", pp. 336, with 149 illustrations. Price: $15.00.

PLASTIC surgery is a branch of surgery which has been and often is avoided by the ophthalmologist. Ophthalmologists looking for a relatively simple outline of ophthalmic plastic procedures will find that this text of Sidney Fox fulfils their needs.

It is far from being a treatise, but is rather a record of the author's experiences. For the most part he outlines procedures which have proved successful in his hands. For this reason it may be criticized on the score that other methods produce better results. For the ophthalmologist who does a limited amount of plastic repair, this book may be recommended as containing methods which, as proved by the author, do produce the required cosmetic and functional result.

The text is free of error, illustrations are good and there is a limited bibliography.

Diseases of Children in the Subtropics and Tropics. By H. C. Trowell, O.B.E., M.D., F.R.C.P., and D. B. Jelliffe, M.D., M.R.C.P., D.C.H., D.T.M. & H.; 1958. 9" x 5¾", pp. 936, with many illustrations. Price: 105s. (English).

THE editors of this book claim that it supplies a long-felt need. The first 150 pages are devoted to problems of preventive pædiatrics and child health, so vital for the children of these regions; thus socio-economics, public health, vital statistics (such as they are), growth and development and cultural variations give the reader perspective. Frequent use is made of World Health Organization references.

The dust cover proclaims "with 75 contributors from 24 countries". The editors thus have followed the custom of recent textbooks, and amongst the many contributors there are some well-known names in children's medicine. The styles and presentations differ, some being fascinating, and some dull; some are post-graduate, others undergraduate. There is a tendency in some chapters for "Western" medicine to be projected to the tropics, with pictures of dark-skinned babies and grass huts to lend local colour. One suspects that parents of malnourished children infested with parasites are not greatly concerned about bedwetting.

The editors assume that readers will have access to standard textbooks on pædiatrics, yet they have attempted to cover all children's diseases, both tropical and cosmo-

politan. The sections on tropical diseases are the more convincing. In the attempt to make the book comprehensive, the over-all standard has suffered. Separate chapters written by the same contributors also vary in their appeal. For example, the section on "Disorders of Metabolism" is more convincing than that immediately following on "Diseases of the Endocrine Glands" by the same authors.

The book is well illustrated; but many photographs are of children with diseases so advanced that they are grotesque rather than informative. They at least highlight the urgency for preventive medicine. Some photographs are very descriptive, such as those portraying the pathogenesis of liver fluke.

The value of the book far outweighs its shortcomings. Australia, with its tropical and subtropical belts, is not far removed from regions whence have come some of the most pitiful illustrations. As every paediatrician worth his salt should have a global approach to his subject, he should also have easy access to this book.

Tumors and Tumorous Conditions of the Bones and Joints. By Henry L. Jaffe, M.D.; 1958. Philadelphia: Lea and Febiger. Sydney: Angus and Robertson, Limited. 10" x 6¾", pp. 632, with 194 illustrations. Price: £10 3s. 6d.

BONE tumours and related conditions have always presented difficulties, principally because they occur too infrequently to allow any one individual to obtain an adequate experience. The author of this work has been recognized as an authority (on the basis of numerous and valuable publications) over several decades, and thus the book would be expected to be an invaluable presentation of the subject; and this it proves to be. An interesting approach to what has been a much disputed subject is that the author refrains from using any specific classification. The shortcomings of classifications seem to be due to a too rigid compartmentation of various conditions, perhaps a too strict use of previously employed terms and failure to segregate neoplasms from neoplastic hyperplasias adequately. The viewpoint presented here does, indeed, assume a confusion of thought and lack of appreciation of simple general pathological principles which may be more widespread than we imagine and, even though it may savour of smugness, than it is in this country. Nevertheless, the suggestion that the various conditions should be regarded "simply as clinicopathologic entities" rather than as fitting into special groups is certainly a most generally useful one in the present state of our knowledge.

The discussion of the first tumour dealt with, the giant cell tumour, is a good introduction to the whole book. The salient features are well presented, and the common errors in current teaching are disposed of in a masterly fashion. It is a great pity that students, in their early susceptible days, are not first introduced to this kind of presentation.

It would require too much space to deal even briefly with the various chapters, but all are worthy of careful perusal and study. A good example of the adequate coverage of recent observations and opinions, with a wise and balanced assessment of the evidence, is the review of adamantinoma of the tibia. Especially good descriptions of some of the rarer conditions are given in the chapters on osteoid osteoma, chondromyxoid fibroma, benign chondroblastoma and the like.

The book is excellently produced, and the X-ray reproductions and photomicrographs are also particularly clear and well chosen. There is a valuable bibliography at the end of each chapter.

The value of the work is perhaps best demonstrated by the ease with which a rare tumour, not previously seen or recognized, may be catalogued by reference to the text. This monograph may be unhesitatingly, and even enthusiastically, recommended to radiologists, pathologists and clinicians who are interested in tumours and tumorous conditions of the bones and joints.

Textbook of Surgery. Edited by Guy Blackburn, M.B.E., M.Chir., F.R.C.S., and Rex Lawrie, M.D., F.R.C.S., M.R.C.P., with a foreword by Sir Russell Brock, M.S., F.R.C.S.; 1958. Oxford: Blackwell Scientific Publications. 9½" x 5½", pp. 1136, with many illustrations. Price: 84s. (English).

THIS new textbook of surgery is designed for the undergraduate, and contains 1092 pages of text. It is the product of a great London teaching centre, for all 16 contributors are members of the staff of Guy's Hospital.

The book is new in every sense. It is surprisingly up to date for a work of this kind. Also, it is free from statements which have been handed down from older textbooks, and which have lost some of their aptness with the passage of time. Moreover, it includes chapters on subjects such as the history and examination, diagnostic radiology in the abdomen, the principles of radiotherapy, common surgical instruments, etc., which are not ordinarily included in textbooks of this type. The newer specialities are ably discussed in chapters on the œsophagus and mediastinum, the lungs and pleura, the heart and major blood vessels.

Nevertheless, what is true has not been neglected for what is new. The subject matter has been wisely selected, with emphasis on the common and the important. The writing is authoritative, and the style is clear and pleasing.

The book is well produced and illustrated. Good reproductions of X-ray films abound, and there are many clinical photographs, the number of which could with advantage be made even greater in later editions.

Rehabilitation in Industry. Edited by Donald A. Covalt, M.D. "Modern Monographs in Industrial Medicine." Editor-in-Chief, Anthony J. Lanza, M.D.; Consulting Editor, Richard H. Orr, M.D.; 1958. New York and London: Grune and Stratton, Inc. 8½" x 5½", pp. 168, with many illustrations. Price: $6.00.

THIS book is described as one of a series of "Modern Monographs in Industrial Medicine". There are eleven articles by one or more co-authors covering mainly the physical handicaps following accidents. The construction of the sentences in some of the articles makes difficult reading; one has to know where the Greeks placed their verbs. However, the authors have condensed a mass of material, and each chapter has a very extensive bibliography which would allow easy reference in a library.

To a medical practitioner who has to advise on the placement of the physically handicapped or who is engaged in rehabilitation treatment, this monograph would be helpful, and details of complicated methods of treatment for peripheral vascular disease would be available.

It is refreshing to read that workers' compensation Acts are widely different in the States of America, and that determination of permanent disability is causing much concern to the profession mainly because of neuroticism and situations in which medical practitioners are expressing widely divergent opinions, thus emphasizing the growing disbelief in doctors' ability and the resulting reliance on quacks. We should like to have some of the facts in this book presented to our legislators and lay authorities.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Expert Committee on Malaria, Seventh Report". World Health Organization Technical Report Series, No. 162; 1959. Geneva: World Health Organization. 9¼" x 6¼", pp. 52. Price: 3s. 6d.

The report from a meeting held in September, 1958.

"Aids to Medical Treatment", by T. H. Crozier, B.Sc., M.D., D.P.H., F.R.C.P.; Fourth edition; 1959. London: Baillière, Tindall and Cox. 6¼" x 4", pp. 376. Price: 15s. (English).

One of the Students' Aids Series.

"Aids to Neurology", by E. A. Blake Pritchard, M.A., M.D., F.R.C.P.; Second edition; 1959. London: Baillière, Tindall and Cox. 6¼" x 4", pp. 488, with illustrations. Price: 15s. (English).

One of the Students' Aids Series.

"Australia in the War of 1939-1945: South-West Pacific Area—First Year: Kokoda to Wau", by Dudley McCarthy; 1959. Canberra: Australian War Memorial. Sydney: Angus & Robertson, Limited. 9¼" x 6", pp. 672, with many illustrations. Price: 30s.

This volume deals mainly with the operations of the Australian army in Papua and New Guinea from the beginning of the war with Japan to the end of April, 1943.

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THE CENTENARY OF AN IDEA.

On a hot June day in 1859 at the village of Solferino in northern Italy, two armies locked in bloody battle—150,000 Franco-Sardinian allies under Napoleon III and 160,000 Austrians under the Emperor Franz-Joseph. Evenly matched, they fought long and fiercely, till by the end of the day 17,000 Franco-Sardinians and 22,000 Austrians had fallen. Soon afterwards the two emperors met and hostilities ceased, but for the wounded there was little to hope for. Official provision for battle casualties in those days was pitifully inadequate if it existed at all. Nevertheless, their plight did not go unnoticed. A deliberate spectator at the battle was a young Swiss banker, Henri Dunant, whose concern at the customary neglect of the victims of battle had brought him to the scene of the fighting. "I sought to organize relief as best I could", he has recorded, "and I adopted one of the Castiglione churches—nearly five hundred soldiers were there—oh! the agony and suffering during those days—the women of Castiglione, seeing that I made no distinction between nationalities, followed my example, showing the same kindness to all these men whose origins were so different." He remained and did what he could until June 30 (the battle had taken place on June 24), but it was clear that much more than this was needed. "The sight of the horrors of this vast battlefield", he writes, "filled me with the burning desire to see war victims recognized for the future as inviolable, without distinction of grade or of nationality. How? I did not reflect at the moment. I had too many other things to do! I was struck by the horrible spectacle of masses of wounded dying unaided; the inadequacy of the medical services seemed to me distressing to the last degree."

So was born in Henri Dunant's mind the desire to see "volunteer relief workers, trained in advance, hospital attendants and nurses filled with good will, wisely directed by permanently established societies", and with it a great and far-reaching idea, "the possibility of making the wounded and those who cared for them inviolable once and for all". This was Utopian to those around Dunant, but to its fulfilment he now set his hand. He was well aware of the power of the pen. Promptly he wrote to the Countess de Gasparin, a young Frenchwoman living in Switzerland, describing what he had seen. Through her good offices his letter with its moving appeal was published in the *Journal de Genève* on July 9, 1859, and then in *L'Illustration* in France. By 1862 he had written and published a book which challenged Europe, "*Un Souvenir de Solferino*". His ideas were taken up with enthusiasm in his birthplace, Geneva, and in particular by a group belonging to the Geneva Public Welfare Society. These were the Commander-in-Chief of the Swiss Army, General G. H. Dufour, a lawyer, Gustave Moynier, and two physicians, Louis Appia and Théodore Maunoir, all of whom were to prove valuable allies. However, Dunant realized that his idea could be achieved only with the patronage of sovereigns and governments. So began an exciting and encouraging tour of Europe, during which Dunant obtained by direct or indirect approach the approval and support of heads of State in country after country. King John of Saxony, in personal audience, made the significant comment to Dunant, " . . . without a doubt any nation which did not join this humanitarian cause would be banned by public opinion in Europe", and this Dunant proceeded to quote wherever he went. The remark, he records, acted like a talisman, for His Saxon Majesty was at the time considered as the Nestor of kings. The outcome was a four-day conference at Geneva, starting on October 26, 1863, which adopted a series of recommendations to be addressed to governments: that neutralization should be proclaimed in time of war by the belligerent nations for ambulances and hospitals, and that it should also be admitted in its entirety for official medical personnel and hospital staff, for the local inhabitants who went to the relief of the wounded, and for the wounded themselves; then, that a uniform distinctive emblem should be diplomatically recognized for the medical corps of all armies; and, finally, that a uniform flag be adopted in all countries for ambulances and hospitals. For the distinctive emblem and the flag a red cross on a white ground was recommended.

"The success was brilliant", Dunant has said. No nation in Europe wanted to be "banned by public opinion", and the Geneva Convention, as it came to be called, was accepted. It has since been extended and adapted to meet changing conditions, but its principles remain essentially the same as those born of the practical compassion of Henri Dunant. However, something even bigger has arisen from the vision and work of the young Swiss banker. His was the idea of the Red Cross, and from it has grown a great national and international agency of incalculable value. Although its primary purpose is to care for the sick, the wounded and prisoners of war, in the words of the *Encyclopædia Britannica*, "the development of the Red Cross movement, especially since 1919, has shown a world-wide tendency to regard the alleviation of human suffering, whatever its source, as falling within the purview of the Red Cross". In this country, as elsewhere, the national Red Cross movement has developed peace-time activities of major significance, notably in its blood transfusion services, and it is accepted as an indispensable handmaid of medicine which commands the respect and support of all doctors. None of these developments, it may be safely asserted, would have seemed strange to Henri

Dunant. His writings show an amazing insight into human need and a courageous vision of how that need might be met. In a special issue of *The Red Cross World* (January-March, 1959), from which much of the material in this article has been drawn, many visionary, even wistful, quotations from Dunant's notebooks are matched with pictures of what is being done today by various international agencies in addition to the Red Cross. Much of this has come about since Dunant's death in 1910, but in the half century of his life after the battle of Solferino he demonstrated as few have done the power of a man with an idea.

Current Comment.

RADIOLOGICAL APPEARANCES OF THE SOFT PALATE.

THE workings of the more subtle parts of our bodies often cannot be deduced from a study of anatomy alone, and where a part cannot normally be studied visually while in action, the elucidation of the exact mechanism involved depends on abnormal opportunity or on technical ingenuity. The movements of the soft palate are a good example of this, and a proper understanding of the mechanism of its action is of practical importance in considering operations for the repair of palatal defects. At a meeting of the Australian Pædiatric Association in Canberra last year, D. L. Dey[1] discussed the movements of the soft palate as observed by him in a patient who had undergone extensive resection of the anterior part of the maxilla. In another recent paper R. I. Green[2] describes the same movement as observed by technical ingenuity, and discusses the radiological techniques employed.

He states that by using soft tissue radiographs it is possible to visualize the soft palate, and air alone usually provides sufficient contrast. In difficult cases, 0·5 ml. of barium sulphate suspension, trickled into the nostrils while the patient is lying down, and some barium paste in the mouth outline the upper and lower surfaces of the soft palate and also the posterior pharyngeal wall. A film is taken while the patient is relaxed and breathing quietly, followed by a series of radiographs during the production of isolated sounds. These are the vowel sounds "oo" and "ee", the voiceless consonants "s" and "sh" and the voiced velar plosive "g" as in "goggle". A final film is taken with the patient blowing a whistle, in which act he is making a sustained effort. The soft palate can be seen as a soft tissue projection hanging downwards and backwards from the posterior end of the hard palate. At rest it lies on the dorsum of the tongue. On elevation it angulates and assumes a comma-like shape. At the point of angulation there may be a definite eminence on the upper surface which coincides with the insertion of the levator palati muscles. There is a corresponding dimple on the oral surface. The posterior margin of the hard palate cannot be seen accurately, but its position can be estimated as about one-quarter of an inch anterior to the hammular processes of the sphenoid bone, which can be localized by following down the line of the posterior edge of the pterygoid plates and the posterior wall of the maxillary antrum. The hammular processes are seen as small bony shadows projected over the body of the soft palate. On elevation the normal soft palate moves upwards and backwards towards the posterior pharyngeal wall, where it may close against the wall directly or against an enlarged adenoid pad. In the adult the point of contact is usually in the region of the slight eminence over the arch of the atlas. There is an important change in the relationship as a result of growth. In the infant the hard palate is high and adjacent to the basi-sphenoid; but as the child grows and the facial bones develop, the hard palate descends, and the point of contact drops from a position high in the vault of the nasopharynx to its adult position, which is achieved before the end of the first decade. When in action the body of the velum of the soft palate thins proximally to the levator eminence and the uvula hangs downwards.

Green then goes on to describe the appearances seen in cases of cleft palate, both before and after plastic repair. He states that, before the repair of a soft palate, a lateral radiograph shows the components of the soft palate as indistinct shadows which elevate slightly and are actually moving upwards and sideways. After repair it assumes a more normal contour, and may be indistinguishable from normal. Closure may occur against the posterior wall, against the adenoid mass, or against either a Passavant ridge or an artificial ridge produced by pharyngoplasty. The competence of the sphincter may be assessed by measuring the gap remaining between the elevated palate and the posterior wall. Any secondary aids to closure, such as an adenoid pad or a Passavant ridge, can be taken into account.

[1] MED. J. AUST., 1959, 1:170 (January 31).
[2] *J. Fac. Radiol.* (*Lond.*), 1959, 10:27 (January).

WILLIAM HARVEY'S LETTERS ON THE CIRCULATION.

To mark the occasion of Harvey's tricentenary celebrations two years ago Professor Kenneth J. Franklin, physiologist, medical historian and classical scholar, published a fluent English translation[1] of the great physician's incontestable demonstration of the scientific truth that the blood moved continuously from the veins to the arteries in a circle. This small book which appeared in 1628 logically and lucidly expounded a new doctrine firmly based on experimental evidence. However, many distinguished authorities in the profession regarded it as a revolutionary document in essence, and it failed to receive general acceptance for a very long time. One reason for the aggressive and intemperate reactions displayed by a number of its critics was the author's revelation of many anatomical and physiological errors which had become fixations in the mind of almost every high medical authority ever since the time of Galen.

Harvey continued to accept the widespread antagonism or complete indifference to his new discovery in the spirit of a true scientist, until one of the most famous of European anatomists and teachers, Professor Jean Riolan, junior, of the Paris Faculty, openly expressed his opposition. In 1649, Harvey at last felt constrained to reason with his respected rival, and to challenge his antiquated views about the circulation of the blood. The two letters which Harvey politely addressed to Riolan have now been translated from the Latin by Professor Franklin, together with nine other letters on the same subject to several influential physicians and scientists in various centres of European learning. The publication of these interesting epistles in fluent English places additional emphasis on Harvey's true character as a gentleman and a scientist of the highest principles, and the faithfulness of their translation speaks volumes for the sound quality of British scholarship in our own time.

In support of this contention it seems worthwhile to quote rather extensively from an introductory passage from Harvey's first letter to Riolan:

> But it was rather so that from many dissections of patients dying of very severe and remarkable complaints I should undertake an account of the ways and

[1] "The Circulation of the Blood". Two Anatomical Essays by William Harvey, Together with Nine Letters Written by Him. The Whole Translated from the Latin and Slightly Annotated by Kenneth J. Franklin; 1958. Oxford: Blackwell Scientific Publications. 8¼" × 5¼", pp. 208, with illustrations. Price: 23s. 6d. (English).

> manners in which the internal parts change in site, size, constitution, figure, substance, and other appreciable variables from the natural form and appearance commonly described by all anatomists, and the various remarkable ways in which they are affected. For just as the dissection of healthy and well-conditioned bodies is of very great help in advancing natural knowledge and correct physiology, so is the inspection of diseased and cachectic bodies of very great assistance in the understanding of pathology. The contemplation of those things which are normal is physiology, and it is the first thing to be learned by medical men. For that which is normal is right and serves as a criterion for both itself and the abnormal. By defining in its light departures from it and unnatural reactions, pathology becomes more clearly obvious for the future, and from pathology the practice and art of therapeusis, and opportunities for discovering multiple new remedies, derive.

This excellent translation of Harvey's letters is a worthy companion to the translation of his *"De Motu Cordis"* published in 1957, and a copy of each should become the cherished possession of every physician who wishes to become imbued with the same irresistible urge as that possessed by Harvey—to apply all the approved methods of inductive reasoning in an effort to support the truth of his thinking by original research. The reader will feel indebted to Professor Franklin for an interesting preface, for a compact biographical sketch and for helpful annotations appended to the text.

FRACTURE PATTERNS.

Now that the great infectious diseases of the past no longer make any appreciable contribution to mortality figures, and are a relatively minor cause of serious morbidity, the attention of those interested in preventive medicine has turned more towards the other great causes of morbidity—namely, the diseases of degeneration, malignant disease and traumatic illness. In a recent paper, A. J. Buhr and A. M. Cooke[1] have analysed over 8500 fractures of common types seen at the Radcliffe Infirmary, Oxford, with special reference to age and sex distribution. Their inquiry was initiated by an attempt to answer the question: are fractures in the aged becoming more common? They found that between 1938 and 1955 the number of patients admitted to the Radcliffe Infirmary with fractures of the femur, from the head to the subtrochanteric level, had increased by six times. They then analysed these figures in terms of age-specific rates per million of population, and found that the incidence rose sharply after the sixth decade, more steeply in women than in men, giving a J-shaped curve. A similar analysis was then applied to all other common types of fractures, based on the number of fractures seen between 1953 and 1957. It was found that the "fracture patterns" thus developed fell into four fairly well defined classes. These are: (i) The pre-wage-earning pattern, in which there is a high incidence in childhood in both sexes, diminishing in adolescence and low throughout adult life; examples of this type of fracture are those of the clavicle, the lower end of the humerus (supracondylar fractures) and the shaft of the tibia. (ii) The wage-earning pattern, in which there is a high incidence in the male population during early adult life, with a low incidence in youth and old age, and a small number of female patients throughout life; examples of this type of fracture are provided by the bones of the hands and feet. (iii) The post-wage-earning pattern, exemplified by fractures of the neck of the femur, in which the incidence is low in early and middle life, with a slightly higher incidence in males, and which shows a steep rise in old age, more marked in females. (iv) A somewhat irregular pattern, with one peak in early life and another in old age; the best example of this type is fracture of the lower end of the forearm. In this case the second peak is seen only in the female sex.

A moment's reflection in most cases tells us that the age-specific curve is what we should expect. Children falling out of trees are liable to incur supracondylar fractures, and so on. Nevertheless, it is interesting to have our impressions confirmed by actual figures, and in the discussion of any problem it is important to start from a sound statistical basis. What can be done about the problem is another question, and while Buhr and Cooke discuss the causes of fractures in the elderly, they have no very constructive suggestions to offer. The truth is that the incidence of traumatic illness is the reflexion of risks which are built into our way of life, and the problem can be tackled only in a piecemeal fashion. Fractures in elderly people are an increasing problem because of the steadily increasing proportion of old people in our populations. A certain amount can be done by educational means, by improvements in traffic control, by better provision for the aged so that they do not have to live in unsuitable houses and go about in dangerous places, and perhaps by better nutrition (Buhr and Cooke suggest that, in selected cases, endocrine therapy could be used to counteract the tendency to greater fragility in old age); but, whatever we do, young people will continue to run risks and old people to stumble, so that the age-specific patterns of fractures will remain substantially the same.

[1] *Lancet*, 1959, 1:531 (March 14).

LEUCOTOMY FOR PAIN.

ALL doctors are more or less familiar with the ups and downs of pre-frontal leucotomy. One of the indications which have been urged in its favour when the justification of leucotomy has been questioned is the value of the procedure in the treatment of intractable pain. It is therefore interesting to note a recent paper by A. Elithorn, E. Glithero and E. Slater,[1] in which the authors discuss the possible effects of leucotomy-type operations in patients with intractable pain and review their experience in 25 cases followed up for periods averaging 40 months. The results of operation were assessed by the patient, by the relative most concerned and by the clinician, and were rated on a scale designed to show social adjustment. A detailed table lists the factors considered in the social behaviour scale, and point scores (0-10) were given for each of the following four groups: symptoms, employment, family relationships and community relationships. Ratings were calculated for the pre-morbid, pre-operative and final follow-up stages in each patient, so that the effects of treatment could be assessed in terms of the regaining of ground lost through illness. Clinical evaluation suggested improvement in 17 of the 25 patients, and in 20 there was an over-all gain on the social rating. However, only eight of 23 patients and eight of 21 relatives thought the operation was worthwhile. This apparent discrepancy was explained by the failure of the operation to relieve pain in the majority of patients, although the associated affective disturbance was relieved, and it was this aspect which was reflected in the improved social adjustment. The more "extensive" operations tended to produce greater relief from suffering, but at the expense of changes in behaviour and personality. The best results were obtained in those cases in which the pain was not severe, but in which there was an excessive psychological reaction characterized by a depressive or anxious preoccupation with symptoms. In such patients leucotomy did not impair the ability to perceive pain but produced relief by lessening the tendency to elaborate a persisting and disabling attitude and mood. It is stated that the risk of excessive personality change, of post-operative epilepsy or of death as a result of the operation (there were no deaths in the series under discussion) amounts to about 7%. Elithorn and his colleagues conclude that leucotomy is not a satisfactory treatment for intractable pain except in a few carefully selected cases in which pain cannot be alleviated by other means.

[1] *J. Neurol. Neurosurg. Psychiat.*, 1958, 21:239 (November).

Abstracts from Medical Literature.

RADIOLOGY.

The Non-Visualized Gall-Bladder.

D. STENHOUSE (*J. Fac. Radiol.* (*Lond.*), October, 1958) discusses the value of "Biligrafin" in enabling one to decide with confidence whether the failure of visualization of the gall-bladder by oral cholecystography is due to disease of the gall-bladder or not. The preparation used is "Biligrafin Forte", the dose being 20 ml. administered intravenously. Films of the gall-bladder are taken 20, 40, 60 and 90 minutes after the injection. If the gall-bladder has not been visualized on any of these films, the decision to take further films was found by experience to depend on the appearance of the bile ducts. If these are clearly demonstrated on the films taken up to 90 minutes, then there is no point in taking more films, because the gall-bladder will not show up later. On the other hand, if the ducts on the early films are seen faintly or not at all, it is occasionally found that the gall-bladder will appear on films taken at anything up to five or six hours after the injection. He concludes that by carrying out intravenous cholecystography with "Biligrafin", doubt as to whether non-visualization after oral cholecystography is due to some factor such as malabsorption or hepatic dysfunction can be removed in a high proportion of the cases examined. Except in the case of the jaundiced patient in whom the serum bilirubin level is greater than 4 mg. per 100 ml., failure of visualization of the gall-bladder after the oral administration of an opaque medium is therefore a definite indication for the use of "Biligrafin".

Ruptured Intracranial Aneurysms.

L. V. PEVETT AND J. W. D. BULL (*Brit. J. Radiol.*, February, 1959) assess the accuracy of the angiographic demonstration of intracranial aneurysms causing spontaneous subarachnoid hæmorrhage. An analysis was made of all cases of subarachnoid hæmorrhage in which the patient ultimately came to autopsy, and in which cerebral angiography had been performed and one or more aneurysms were demonstrated by the pathologist. The authors have subdivided the causes of diagnostic error into these five groups: (i) arterial spasm, (ii) observer's error, (iii) inadequate examination, (iv) normal arteriograms, (v) cases in which an intact aneurysm was observed, but a second (ruptured) aneurysm was missed. The incidence of spasm (2·5%) in the present series was fairly high, probably because of the practice of submitting patients to arteriography much earlier than in other neurosurgical units. Observer error will always be a factor in any medical diagnostic problem, and here it amounted to 3%. This error is likely to be reduced by additional experience. Inadequate examination was the cause of failure in diagnosis of 2% of all cases. The answer to this problem is multiple projections. A normal arteriogram was obtained in 2% of cases. Smallness of the aneurysms was a feature of this group and probably explains why they were not demonstrated radiologically. Cases in which an intact aneurysm was observed but a second (ruptured) aneurysm was missed accounted for 2% of cases. In this series of 210 cases the accuracy of radiological diagnosis was 89%, but the authors are of the opinion that an accuracy of 96% is possible if observer error is minimized and adequate projection of the cerebral vessels is obtained.

Radiological Patterns of Pulmonary Granulomata.

B. FELSON (*Amer. J. Roentgenol.* February, 1959) states that a multicystic X-ray pattern may be encountered in tuberculosis, histoplasmosis, progressive bullous emphysema, pneumonoconiosis and many other diseases. However, the association of this pattern with enlarged tracheo-bronchial lymph nodes has, in a number of cases in the series under review, enabled the author to suggest the diagnosis of sarcoid, which subsequently proved to be correct. Earlier skiagrams showing more typical radiological features of sarcoidosis, and clinical and laboratory evidence consistent with this disorder are, of course, very helpful in the differential diagnosis. The subsequent radiological changes appear to substantiate the viewpoint that the cystic changes result from pulmonary fibrosis. While it is realized that the radiological identification of fibrosis is not always reliable, the author considers that the criteria used in this series seem adequate. These included strand-like densities, persistence of the shadows for periods often in excess of a year, and retraction of fissures, hila and mediastinal structures. The author states that the seriousness of this multicystic complication of sarcoidosis is evident from the fact that five of the nine patients died of the disease and two others were in a poor state when last seen. The multicystic pattern therefore represents a late manifestation of the disease.

A Positioning Cradle for Pædiatric Radiology.

E. POULIQUEN (*Presse méd.*, December 17, 1959) states that radiological examination of the infant's pelvis is indicated, particularly when congenital dislocation of the hip is present. An absolutely accurate skiagram is necessary, and this is difficult to obtain because of the need for strict immobilization of the skeleton in a position of perfect symmetry. The author has designed a wooden "cradle" to make this possible, and he describes it in detail.

Radiological Aspects of Craniopharyngiomas.

D. J. BARNETT (*Radiology*, January, 1959) discusses the radiological features of 62 cases of craniopharyngiomas diagnosed in the Neurological Institute of New York. The sella turcica was not usually enlarged when a craniopharyngioma was present. In a few patients, however, it was very large, and in one instance the vertical diameter could not be determined because the floor of the sella turcica had disappeared. At the Neurological Institute the upper limit of normal for the antero-posterior diameter of the sella turcica is taken as 17 mm., and for the depth 14 mm. In about half the patients the anterior clinoid processes escaped erosion. When the anterior clinoid processes were involved, the inferior surfaces were eroded, causing the processes to be pointed. The dorsal surface rarely showed any change from normal. The dorsum sellæ and the posterior clinoid processes suffered the most from erosion. In only 12 patients was the dorsum sellæ normal; in three times that number there was moderate to severe loss of bony substance. Almost half of the patients showed no change in the floor of the sella turcica, with the remainder showing slight to severe loss. An unexpected finding was an increase in density of various portions of the sella turcica. Two patients exhibited an increased opacity of all the clinoid processes as well as of the floor. Another patient showed increased opacity of the anterior clinoid processes and floor only. In four the floors appeared dense, with varying degrees of erosion of the clinoid processes. In only one patient was there increased opacity of the sella turcica without any other abnormality; in the remainder, erosion or enlargement of the sella or calcified deposits were present. The presence of abnormal calcified deposits in and about the sella turcica was an important finding, and frequently was sufficient to permit diagnosis without additional X-ray examination. A few of the craniopharyngiomas were calcified at the periphery only, showing a thin, curved opaque outline. In about three-fourths of the cases with calcification this took the form of soft, flocculent, irregular densities that did not necessarily reflect the size of the tumour.

Stress Fractures of the Calcaneus.

A. C. WINFIELD AND J. M. DENNIS (*Radiology*, March, 1959) state that calcaneal stress fractures occur more frequently than is generally believed, particularly among military personnel. The histories obtained from these patients were generally consistent, showing gradual onset of pain and swelling of the heel. No recollection of acute sudden trauma could be elicited in typical cases, but frequently the symptoms were said to develop after a particularly rigorous episode of marching. There was usually a delay of some days to two weeks between the onset of symptoms and the time of reporting to the dispensary. Physical examination revealed swelling around the calcaneus, which as a rule was quite tender. There was frequently tenderness also along the course of the Achilles tendon. Originally all the men were treated on the basis of a multitude of diagnoses, the most frequent of which was tenosynovitis. Invariably symptoms were present for one or two weeks before positive radiological identification of the lesion was made. Axial and lateral projections are taken in all calcaneus examinations. The constant radiological sign of stress fracture is a dense line of increased bone reaction running anteriorly and parallel to the posterior margin of the calcaneus, the distance from the latter varying from case to case. Such a line, it is noted, runs almost at right angles to the normal trabecular pattern, which consequently is disrupted in this area of increased bone reaction. The increased density undoubtedly represents

bone formation due to healing at the site of the fracture, and changes during the course of healing. When symptoms are acute, several days of bed rest are needed to reduce the swelling and alleviate the pain. A strict regime of light duty with diminished weight-bearing is then sufficient, and there is slow but steady improvement. In one fracture treated with a plaster cast, this did not appreciably aid the healing but rather seemed to delay the course of repair and the disappearance of pain.

Radiological Observations on "Chronic Appendicitis".

G. OSBORNE (*Brit. J. Radiol.*, March, 1959) discusses a clinical, radiological and pathological study made of 50 consecutive patients in whom appendicectomy was performed on account of a diagnosis of chronic or recurrent appendicitis. A similar study was made of a control series, 50 patients without gastro-intestinal symptoms at the time or in the past, whose appendices were removed during abdominal operations for gynæcological conditions. He concludes that radiological examination is of no value in the diagnosis of chronic or recurrent appendicitis except for the exclusion of other conditions which may cause similar symptoms, and occasionally for the detection of a radio-opaque calculus in the appendix. Reference is made to the implications of the radiological findings as to the value of local tenderness in the clinical diagnosis, and to the question of the existence of chronic appendicitis as a clinical entity.

Giant Hypertrophic Gastritis.

P. E. S. PALMER (*J. Fac. Radiol. (Lond.)*, October, 1958) describes the changes seen in giant hypertrophic gastritis. This is a very definite condition which is based on pathological findings as well as on radiological and gastroscopic investigations. The distended rugæ seen in this condition were originally described as resembling the convolutions of the brain. Radiologically the changes in the stomach fall into three well-defined groups. In the group to which most cases belong, the middle one-third of the stomach is affected in two ways, which can be seen in the same patient either at the same time or in consecutive examinations. There are massive irregular rugæ on the posterior wall and greater curvature of the stomach. In some cases the height and width of the folds are such that the mucosal pattern may be difficult to see and the stomach wall shows an irregular coarse thickening, with decreased peristalsis, and is less pliable than usual. In the other variety the mucosa is so hypertrophied that the stomach appears filled with marbles—the condition of diffuse or multiple polyposis. The stomach wall is also stiff and peristalsis is decreased. These "polypi" are variable and may take from seven weeks to 21 months to develop, and can disappear equally readily. They are due to simple mucosal hypertrophy and lack the true stalk of the simple adenomatous polypus. In the second group—the type usually described as "tumour simulating gastritis"—the most striking finding is of large tumour-like masses in the fundus of the stomach. The mucosa is smooth, and if the pattern is visible it is distorted, just as if normal gastric mucosa was stretched over an underlying tumour. In this group associated gastric ulceration is frequently demonstrable radiologically, whereas in the previous group any ulceration present is obscured by the mucosal hypertrophy. The third group is the least common and, because the pyloric region is affected, the most dramatic and difficult to diagnose. In this group recurrent vomiting occurs and there is frequently pain. Radiologically, gross hypertrophied folds of mucosa are seen, with thickening of the stomach wall involving its distal third. Prolapse of this mucosa can occur, and bleeding is not infrequent. The differential diagnosis is in all cases between benign and malignant disease of the stomach. Radiologically it is not always possible to distinguish the two conditions.

RADIOTHERAPY.

Polycythæmia Vera.

H. D. FRIEDBERG (*J. Fac. Radiol. (Lond.)*, April, 1959) reports that during the period 1944–56, 52 cases of polycythæmia vera were treated by irradiation. The average age of the patients was 55 years, 29 were males, 23 were females, and the common presenting symptoms were pain in the left hypochondrium, fatigue, dizziness, headache and dyspnœa. Amongst the group, 38 thrombotic incidents were recorded in the history and follow-up observation of 29 patients. The purpose of radiotherapy is to produce a lasting remission, and prior to the use of ^{32}P in 1949 whole body irradiation was used; a consideration of the results of treatment by the two methods shows the results to be exactly similar, and the author concludes that the mode of irradiation is immaterial in producing a remission. The dosage of ^{32}P at present used by the author is a single injection of 100 to 140 microcuries per kilogram of body weight; with whole body irradiation the commonest dose is 150 to 175*r* given over a period of 20 to 24 days. The five-year survival rate was 78% (37 cases), and the ten-year survival rate was 50% (14 cases).

X-Ray Therapy of Acute Pancreatitis.

N. L. RYIBAKOVA (*Vestn. Rentgenol. Radiol.*, volume 32, number 2, 1957, abstracted in *Excerpta med. (Amst.), Sect. XIV*, May, 1958) reports that 25 patients suffering from acute pancreatitis were treated with radiotherapy, which was combined with other conservative methods. The majority of the patients entered the hospital with a pronounced clinical picture: vomiting, nausea, pains in the abdominal cavity, meteorism, fever, leucocytosis and a high content of diastase in urine. X-ray therapy was applied on the second and third days of the disease, sometimes within six to eight hours after the first symptoms of the disease had appeared. The factors of X-ray therapy were as follows: 180 kilovolts, 15 milliamperes, distance 40 cm., filters 0·5 mm. copper and 1 mm. aluminium, field 8 cm. by 10 cm. The pancreas was irradiated from the front twice a week by a single dose of 200*r*. The total dose in most cases was 1200*r* (in air). On some rare occasions the treatment was discontinued when the total dose was 600 to 800*r*. All patients left the clinic in good condition. The irradiation should be started in the first days or even hours of the disease.

The Value of Irradiation Therapy in the Treatment of Endometriosis.

A. BROSSET (*Acta obstet. gynec. scand.*, volume 36, fascicule 2, 1957, abstracted in *Excerpta med. (Amst.), Sect. XIV*, May, 1958) states that the aim of therapeutic measures in cases of endometriosis should be relief of the subjective discomfort and not removal of the lesion. This can be achieved with conservative irradiation therapy, which has now been applied to 101 patients at the Radiumhemmet. A dose of 100 to 150*r* is delivered to the lesion from two or more portals, and treatment may later be repeated once or several times. A temporary exacerbation of symptoms may follow treatment. In most cases a short period of amenorrhœa ensues, and occasionally this persists. Menopausal symptoms are, however, not so severe as when classical surgical or radiological castration is performed. Results are discussed in detail.

Treatment of Pterygium by Surgery and Beta Radiation.

W. LENTINO *et alii* (*Amer. J. Roentgenol.*, January, 1959) present the results of treatment of pterygium by surgery and beta irradiation in 256 cases. The pterygium was first excised and an area of bare sclera left adjacent to the cornea. One week later a beta ray plaque was applied (at first a radon, and subsequently a strontium plaque was used), and a dose of 2500 reps given. This dose was repeated in 14 days. An analysis of 166 cases has shown only six failures. Three of these were due to inadequate surgery or irradiation, or both; the other three could not be explained, but the authors observe that no amount of irradiation can compensate for inadequate surgery, and that if beta irradiation is given in insufficient amounts, or delayed too long, the chances of recurrence are increased. No case of cataract has been observed in the five-year follow-up, and it is estimated that the dose to the central lens is only 6% of the surface dose.

Radio-Resistant Tumours.

G. E. FLATMAN (*J. Fac. Radiol. (Lond.)*, January, 1959) states that despite the general principles all radiotherapists follow, there may be a divergence of opinion about the treatment of certain tumours. It is useful to take stock occasionally and to stress treatment successes. In this respect the author discusses cases of osteogenic sarcoma, of fibrosarcoma of the antrum, of chondrosarcoma, of chordoma, and of carcinoma of the caecum, which have been attended with success following radiation therapy. Whilst it is easy to make a case against treating certain groups of tumours, where there is no alternative method of treatment the palliative value of radiotherapy is often high, and long periods of recovery (and possibly cure) are sometimes obtained. The author observes that much larger doses of radiation may be required than for other tumours, and that it is sometimes advantageous to spread the treatment over a long time.

Clinico-Pathological Conferences.

A CONFERENCE AT SYDNEY HOSPITAL.

A CLINICO-PATHOLOGICAL CONFERENCE was held at Sydney Hospital on November 16, 1958. DR. NORMAN ROSE, the Medical Superintendent, was in the chair, and the principal speaker was DR. D. J. HARBISON.

Clinical History.

Death Within Four Hours: A Case Calling for Quick Thinking and Quick Acting.

For about two weeks an unemployed man, aged 42 years, had felt off colour, and for three or four days he had been troubled by anorexia, constipation and coughing, and by a pain in his right hypochondium made worse by coughing and deep breathing. He attended the casualty department seeking relief of constipation and was given an enema of soapy water; but on his way back to Wooloomooloo he collapsed in the street and was brought back to the hospital by ambulance at 2 p.m. He was hurriedly admitted as a "shock case", in a collapsed state, extremely cyanotic and barely able to speak or answer questions. His tongue was dry, caked and discoloured; his respirations numbered 60 per minute, his pulse was regular but rapid (160 per minute), his temperature was 102·6° F. and his systolic blood pressure was 60 mm. of mercury. His conjunctivæ were thought to be faintly jaundiced. Breath sounds were mostly harsh, but at the base of the right lung there was bronchial breathing, together with coarse rales and a friction rub. Slight tenderness and guarding were present in the right hypochondrium, but no masses were felt. No abnormalities were detected in the heart, central nervous system or rectum. No urine was obtainable for examination.

The provisional diagnosis was lobar pneumonia. Treatment included raising of the foot of his bed on blocks, oxygen given by mask, the use of warm blankets and the injection of 500,000 units of penicillin. A chest skiagram showed "a large area of consolidation in the right middle and lower zones". At 4 p.m. he had a fit and lost consciousness. An intravenous infusion of "Dextran" was started, but he died at 5.20 p.m.

Clinical Discussion.

DR. D. J. HARBISON: Mr. Chairman, ladies and gentlemen. The case to be discussed today is that of a man, 42 years old, who apart from rather mild symptoms consistent with an attack of pneumonia of recent onset, was suddenly smitten with an acute illness following an enema, and died within several hours from the clinical syndrome designated as "shock". The comment of the reviewer was that this is "a case calling for quick thinking and quick acting". I must admit at the outset that, after a considerable amount of leisurely thinking and no action, I am still unable to arrive at a certain diagnosis. In fact, there are certain features in the story which can be quoted against my diagnosis which I have to offer.

Briefly, the problem is this: A middle-aged man presents with a history of being "off colour" for two weeks, and more specifically complaining of anorexia, constipation, cough and pain in the right hypochondrium of pleuritic type for a period of three or four days. The assumption is that at this stage he is not acutely ill, for after an examination in the casualty department he is ordered and given a soap-and-water enema. The course of events during the administration of the enema is not available to us, but his condition was apparently good enough for him to leave hospital on his own two feet.

In the early afternoon he returns in a state of extreme shock. He is cyanosed, and so ill that he is unable to give a history. He has a blood pressure of 60 mm. of mercury systolic, a rapid regular pulse of 160 and a respiratory rate of 60 per minute. It is thought that he is faintly jaundiced, and finally there are signs of pneumonic consolidation at the right base, with a friction rub and some tenderness and guarding in the right hypochondrium. The bowel sounds were present. This tenderness and guarding would be consistent with a pneumonic process in that region, and it is not necessary to postulate the presence of any intraabdominal pathology. The heart, central nervous system and rectum were not found to be abnormal.

He was treated as a case of pneumonia, and this diagnosis would seem to be confirmed by X-ray. Two hours after admission he had a fit, lost consciousness and died about three and a half hours after admission, and presumably within a few hours of being observed in a reasonably healthy condition.

In summary, then, he has signs of pneumonia but is not ill, he has an enema and dies within a few hours in shock.

It is convenient to divide the differential diagnosis into three main groups: firstly, causes of rapid death related to pneumonia; secondly, related to enemata; and thirdly, related to neither.

It is well recognized that debilitated people, especially alcoholics, may die from uncomplicated lobar pneumonia in a short space of time. However, in this case, although he is unemployed, we have no evidence that he is debilitated or that he is an alcoholic, and anyway, it would be unlikely that a man in this condition would be turned away from our casualty department. The time interval is too short for his death to be attributed solely to pneumonia. Thus, if pneumonia is the cause of death, it is necessary to suggest that some complicating factor is involved.

Cardiac arrhythmia complicating pneumonia must be considered as a cause of rapid death in any patient with a pulse rate of 160 per minute. It is characterized by its sudden onset. However, the rhythm here is regular, and a regular rate of 160 from paroxysmal tachycardia or auricular flutter alone, would not be sufficient to make this man as ill as he was in such a short space of time. Furthermore, a sinus rhythm of 160 per minute is acceptable in any patient with this degree of shock.

There is little evidence of pericarditis. A pericardial friction rub was not heard, and cardiac tamponade is excluded by the chest X-ray if not on clinical grounds.

Septicæmia, with or without acute bacterial endocarditis, is a recognized terminal event in the natural history of pneumonia due to virulent organisms; but it is difficult to accept this theory when we remember that the patient was reasonably well until a few hours before death. Certainly, the breaking off of a large bacterial vegetation could conceivably cause coronary embolism, and the fit and loss of consciousness which occurred terminally could be attributed to cerebral embolism; but this would be unlikely to occur almost simultaneously, and one would expect evidence of other peripheral emboli to be found.

A more likely explanation would be acute adrenal failure secondary to adrenal hæmorrhage similar to that seen in the Waterhouse-Friederichsen syndrome. Most commonly this occurs *de novo* rather than superimposed upon an already present pneumonia, and is usually accompanied, in the adult at least, by a purpuric rash which could hardly have been overlooked.

Rupture of a hydatid cyst has been known to cause fatal anaphylaxis; but both intrapleural and intraperitoneal ruptures are very rare, and are usually associated with severe pain and with the signs of acute hydrothorax on the one hand and definite signs of an acute adhesion on the other, both of which are lacking in this case. The anaphylaxis is frequently accompanied by allergic phenomena such as urticaria and pruritus, and the X-ray findings do not suggest either possibility, so this would seem unlikely.

For similar reasons I feel that ruptured amœbic abscess must also be excluded, for although this would readily explain the icterus, the course of the illness is usually much longer, and once rupture has occurred, the signs of localized infection are more specific than in this case.

In most cases which come to clinico-pathological discussion, dissecting aneurysm merits a mention. In dissecting aneurysm leaking of blood may occur into the lung or pleura or both, and this could account for the initial symptoms and signs, although it would be expected to cause more dramatic pain than this patient complained of initially. Dissection may spread to involve the coronary vessels causing myocardial infarction, and may cause focal central nervous signs due to involvement of innominate and carotid vessels. This patient on admission was in no fit state to tell us of the severe pain that this would have caused; but it would be expected that some inequality of the pulses would be found, and a pyrexia of 102° F. would be unusual. I feel, then, that this is unlikely to be the cause of his illness.

The second group of causes are those which could be related to the enema. The frequency with which enemas are given without mishap, often by unskilled personnel, indicates that an enema is a relatively safe procedure. Most reported accidents have occurred following the use of a hard rectal nozzle and Higginson's syringe, instead of a soft rubber catheter and enema can, as has been used in this hospital since long before the introduction

of penicillin. However, it is conceivable that the introduction of a rubber catheter together with the rectal injection of a pint or two of soapy water may lead to a fatal accident. We are told in the protocol that there was no abnormality detected in the rectum, and I assume that this statement means that the rectum was examined at least digitally and probably by proctoscopy. This, then, would categorically exclude rectal hæmorrhage as a factor in this case.

Unfortunately a few nurses still feel that a more effective result is obtained by pushing the catheter as far as possible into the anus, and this would lead to trauma to the bowel above the level viewed by the proctoscope, although it has been shown radiologically that the usual course of events is that the catheter merely curls up inside the rectum.

Intraperitoneal perforation is frequently followed by a "silent" interval, during which the pain is accepted by the patient as the natural aftermath of such a revolting procedure. This would account for his being able to leave hospital.

Peritonitis from large-bowel perforation may cause rapid shock and subsequent death, although the course of events is usually much slower than in this man. Furthermore, it would be most unusual, if death were due to peritonitis, not to find more abdominal tenderness, rigidity and guarding than there was here.

It is possible that the enema could rupture an already weakened bowel in the region of the hepatic flexure, such as the bowel proximal to a colonic carcinoma; but there are no symptoms of colonic cancer, and again, signs of generalized rather than localized peritonitis would be expected in a patient who dies so quickly.

Air embolus could not occur unless a Higginson's syringe were used, and even so, immediate rather than delayed onset of symptoms would be expected.

Hæmolysis due to injection of water during transurethral resection has been described; but 600 ml. or more of water is necessary to produce symptoms, and it would strain belief too far to suggest that this amount of fluid could enter a vein from an enema.

Septicæmia resulting from infection introduced into rectal veins would be unlikely to cause such a rapidly fatal outcome, and electrolyte disturbances, such as hypokalæmia, occur only after repeated enemas.

Thus, although it would be attractive to postulate that this patient had a mild pneumonia, and suffered from some dramatic complication resulting from the enema, it would seem that, with regard to the short latent period following the enema and the rapid death after the onset of symptoms, this event is unlikely.

There remains to mention briefly that death could have occurred from some unrelated episode, such as trauma or myocardial infection, in the short time between hospital visits, or from the remote possibility that he stole some poisonous substance from the hospital on his first visit and swallowed it shortly after leaving. There is no evidence to suggest any of these.

Finally, let us consider pulmonary embolism. There is no doubt that the common cause of pulmonary embolism is venous stasis followed by a period of rest. However, an unknown, although admittedly small, proportion of cases of pulmonary embolism occur in previously healthy people who lead an active life. It seems likely to me that this man developed an embolus in a branch of the right pulmonary artery three or four days before admission. This would account for the pleuritic-type pain in the right hypochondrium. Subsequent infection of the infarcted area would explain the pyrexia, malaise and the X-ray changes. The faint jaundice may be attributed to hæmolysis in the infarction causing the release of bilirubin. The enema was probably like the flowers that bloom in the spring, and had nothing to do with the case. After leaving the hospital, a massive pulmonary embolism occurred (or possibly retrograde extension of the thrombus to involve the main pulmonary artery), and this caused his readmission in a shocked state, with cyanosis, hypotension, tachycardia and a respiratory rate of 60 per minute. I admit that, to complete the picture, it would be nice to have a history of hæmoptysis; but this occurs in only about one-third of the cases.

Some elevation of the jugular venous pressure would be expected. However, the literature contains many reported cases in which the venous pressure is stated to be normal, in spite of the statement by Paul Wood that it is always raised in massive pulmonary embolism. Whether this is due to the fact that not all patients with pulmonary embolism are seen by cardiologists in the acute phase is not important, for it is unlikely that the resident medical officer in charge of this case was a superior clinician to the many who have reported cases previously without noting the raised venous pressure.

An electrocardiogram perhaps would have aided the diagnosis.

The fit and subsequent coma which occurred terminally were probably due to cerebral anoxia; but it is possible that an increase in the right auricular pressure allowed a further embolus to cross paradoxically into the systemic circulation and reach the brain.

This would seem to me to be the most likely course of events, and so I would like to offer my diagnosis of this difficult case as pulmonary embolism, although I would not be greatly surprised to hear that the pathologist has a different interpretation.

If allowed a second choice, I would consider the possibility of a virulent septicæmia supervening upon an already present pneumonia complicated by acute adrenal failure due to adrenal hæmorrhage; the prime objection to this being that there is no purpuric rash and that the change from a relatively healthy man to an extremely ill one is a little too fast. In all, I think that pulmonary embolism is a better explanation.

DR. N. ROSE: Dr. Bell, have you comments to make on this patient?

DR. G. BELL: No, but I was very interested in Dr. Harbison's comments about pulmonary embolism. It must have been something extremely sudden. The second suggestion about anaphylaxis following a ruptured hydatid: I have seen some very severe cases of this. I remember one woman who had a very well-marked rash like an acute severe urticaria; she did not die, but she was very ill for some time. No I do not think I can throw any light on this case.

DR. ROSE: I see a representative of the student body here. We would like to hear what your thoughts are.

STUDENT: I do not know whether I might dare offer an alternative. I did have the idea originally of a neoplasm with a secondary in the brain and a hæmorrhage into it.

DR. ROSE: I think that seems a good starter. The only people who know the diagnosis here, I believe, are Dr. Whyte and Dr. Palmer. Would any one else care to say anything. Dr. Walsh?

DR. R. J. WALSH: Sir, I would like to ask Dr. Harbison how he would act quickly and think quickly if he were faced with the actual problem of treating this man. What investigations would be undertaken and what treatment would he offer?

DR. ROSE: I think we will ask Dr. Harbison to discuss that later. Dr. Calov, this is a subject in which you are very interested. We would like to hear your remarks.

DR. W. L. CALOV: Well, Mr. Chairman, I am completely bamboozled with this case. I would like to congratulate Dr. Harbison because he has give a delightfully clear study of the thing with the small amount of information at his disposal, and he has reached a conclusion which could be the right one; but a thing which puzzles me is that this is said to be a case for quick thinking and quick acting. That rather suggests that if somebody had thought very quickly and acted very quickly in the right direction this fellow might not have died, and I cannot, for the life of me, think what quick action could have been done to save him. Assuming that it is a massive pulmonary embolus, or assuming that it is something else, I cannot help feeling that his visit to the casualty in the morning had something to do with it. They gave him an enema, it does not say here what the result was, and this is something one would always inquire about when an enema has been given. It seems unlikely that a viscus was ruptured, because if that were so, we would expect to have seen evidence of gas under the diaphragm. On the other hand, if he was lying down there may not have been enough gas to show up very clearly. If he were propped up you would expect to see it certainly. So I am afraid I cannot contribute anything conclusive. He had been sick for some days before he came to the casualty, and I suspect that he had pneumonia which apparently did not trouble him very much up to that time, and my interpretation is that there was a mild attack of pneumonia with a pneumococcal septicæmia and possibly also a pneumococcal meningitis.

DR. ROSE: Now I think one of our pathologists, Dr. Coombes, has been doing post-mortems in the last month on some cases rather like this. Have you any suggestions, Dr. Coombes?

DR. B. COOMBES: We have had a few lung abscesses.

DR. H. M. WHYTE: Mr. Chairman, I am a bit worried whether some of you may be putting too much faith in this little comment at the top about quick thinking and quick acting—which, of course, is just designed to entice a few people along who may think themselves quick thinkers and quick actors. It does not really imply that anything can be done—unless you believe the enema had anything to do with it; and then it might have been the man himself who should have done some quick thinking and not had the enema. However, I wondered whether Dr. Davies might tell us how he would tackle a case like this of a man coming in with shock and cyanosis and a blood pressure of 60.

DR. W. E. L. DAVIES: Sir, firstly I would not be so cynical about the opinion of the resident who first saw this man in the casualty department. I feel certain that advanced pneumonia or septicæmia would not have been overlooked. Hence, my first thought is, what is the diagnosis? I suggest that something dramatic happened while he was on his way down to Wooloomooloo. The clue may be in the first paragraph relating to an abdominal condition, perhaps one that Dr. Harbison mentioned, an amœbic abscess. Imminent rupture into the pleural cavity could give pleuritic pain. Rupture of the abscess into the pleural cavity and the rapid development of an effusion could account for the advanced radiological changes and the failure of the resident casualty officer to detect signs in the chest a short time earlier. Such a diagnosis would account for why the patient was shocked when he arrived back in hospital. Nowadays, instead of warm blankets and putting the foot of his bed on blocks, he would be given serum albumin, and there is some chance that his blood pressure might have been restored to a satisfactory level to enable further treatment, perhaps including surgery, to be contemplated.

DR. B. M. HURT: I would like to congratulate Dr. Harbison, because I saw no way in which anyone could speak so eloquently for 20 minutes on this interesting case. I think the emphasis is probably being placed on the fact that he was seen by a resident in the first instance, and like Dr. Billington, I feel that this man had suffered from pneumonia for some time before he came to casualty on the first occasion. It is just possible that he was not seen by a medical person, although this is unlikely, and that he was already suffering from lobar pneumonia, and like Dr. Billington, I would consider this man as having septicæmia, possibly pneumococcal. What could we do about it? At a recent physicians' meeting we decided that this type of septicæmia is very difficult to treat. To 500,000 units of penicillin, for instance, you would have to add a soluble sulphonamide and tetracycline or "Chloromycetin" by intramuscular or intravenous injection to cover all possibilities of such a fulminating infection. Let us presume that it is pneumococcal, one of the most severe and rapidly fatal of the septicæmias. Let us get back to the first line of the protocol again—an unemployed man, possibly an alcoholic, only 42 years of age, who staggered back to Wooloomooloo—and I think this is the type of man who might well have fulminating septicæmia, and in whom the chest X-ray might give us the diagnosis. I do not feel that the pulmonary embolus story will be borne out, although it is a very well worth while suggestion. I feel like Dr. Davies that we have to come to a presumptive diagnosis. What can we do about treatment? The first thing is the shock—he should have his blood pressure raised. Is there a fulminating infection? We have to try to overcome that with all available antibiotics, not just one. Thirdly, after getting him into reasonable shape, to do a bronchoscopy in case there is any bronchial obstruction, and perhaps a sigmoidoscopy to see whether there is a rupture in his rectum. I think this man must have been a very big problem for the attending people. I would like to hear Dr. Harbison's comment on what he would have done.

DR. C. S. H. REED: Sir, I should like to say that this strikes me as a most unusual story. In fact, it's a Hollywood drama story, and I think you have to look for something dramatic. Firstly, the coincidence of pyrexia and a shocked condition is unusual, and to my knowledge there are only two conditions which will do this: one has already been mentioned—overwhelming septicæmia; the other is blood in or around a serous cavity, where it may be collected or it may be actually free within the cavity. I cannot possibly imagine anybody overlooking symptoms and signs such as this man would have had to have if he had been septicæmic. On one occasion only have I seen an X-ray similar to this which turned out not to be pneumonia, and which, in fact, was retropleural bleeding. I would like to postulate that this man had one of Dr. Harbison's outsiders—that is, a dissecting aneurysm or some form of bleeding retropleurally—and has died in a shocked state because of internal exsanguination.

DR. R. G. LEWIS: Mr. Chairman, there are two main points from the history, one of which has just been mentioned by Dr. Reed. Firstly, the presence of a fever of quite a height in a shocked man leads me to think that should that man have not been shocked, his temperature would have been possibly higher still. For that reason I am also in favour of a diagnosis of pneumonia with an overwhelming septicæmia. I think this level of temperature is a little higher than usually found in pulmonary embolus, especially in a shocked person. The other point which is possibly in favour of pulmonary embolus is this suggestion of faint jaundice, which I think is doubtful from the way it is worded, and secondly, it had occurred rather rapidly for pulmonary infarction. I myself have seen a case like this of pneumonia with an overwhelming infection. This man could quite easily have had some consolidation for a day or so. Whereas Dr. Billington suggested a pneumococcal pneumonia with septicæmia, I have seen just this sort of thing with staphylococcal pneumonia. I think it is probably one of the coccal infections with septicæmia—I do not think we need postulate any adrenal hæmorrhages or be worried about the lack of petechiæ to make this diagnosis.

DR. B. J. LAKE: Well, sir, I have little to add. I think Dr. Lewis has summed up my opinion about the matter. We all agree that a shocked state may be derived from a wide variety of causes; but to occur as in the history presented in the first paragraph, with the sudden falling off in condition, I think that septicæmia of one sort or another is the right diagnosis.

DR. ROSE: If there is no further discussion, I think we ought to give Dr. Harbison the opportunity of saying what he would do in order to establish a diagnosis quickly.

DR. HARBISON: Before I do that, sir, I should like if I may to defend myself a little in my diagnosis. The main attack has been levelled at this problem of septicæmia, and while admitting that it is quite a possibility, I should like to point out the features against it. Like Dr. Davies, I feel that the casualty surgeon could hardly have overlooked a pneumonia of that size. A man with that much infection in his chest would surely have been extremely ill, and not have been given an enema and sent away; and for that reason I feel that something has happened to that chest in the last few hours that has been of great significance. Hence I think it is more reasonable to explain the symptoms on the basis of pulmonary embolus rather than fulminant infection. Secondly, if fulminant infection is the cause, what has caused it to flare up? He had symptoms for three or four days and he was controlling the infection fairly well, and then suddenly something happened and it became generalized. In my experience the usual course of events with septicæmia is that it does not have time to become localized in the chest in this form. There is perhaps a small area of pneumonia, and from that it spreads so virulently that the lungs are not so grossly affected.

I think the suggestion of pneumococcal meningitis is quite a good one, and certainly people with meningitis as acute as this do not always have neck stiffness. However, if the blood pressure was 60 systolic and the pulse rate 160, I would expect him to be admitted in coma and not just shocked and stupid as he was. So for those reasons I feel that the most likely diagnosis is pulmonary embolus rather than septicæmia. To answer Dr. Davies's suggestion of amœbic hepatitis, the thing that, to my mind, stands out so strongly against this is the clear costo-phrenic angle, and I think this is such a positive finding that it almost negates the diagnosis of amœbic hepatitis with intrapulmonary rupture. If intrapulmonary rupture occurred, one would expect to find some anchovy-sauce sputum issuing from his mouth, or else he would have so much bronchial fluid that someone would surely have done a bronchoscopy.

Coming now to treatment, I would assume that he was treated a few years ago, and perhaps he was fortunate, for he was allowed to die in peace. These days this would not have happened. This man was so shocked that intravenous therapy would have been commenced immediately. There being no evidence of blood loss, one would avoid blood, and I think the most reasonable thing prior to investigation and proper examination would be to commence the transfusion with noradrenaline in saline or glucose. I cannot, quite frankly, see much place for serum albumin, because there is no evidence that he has lost any serum. Having resuscitated the patient, the next thing, I think, is thorough examination and full assessment, including a sigmoidoscopy to exclude the possibility

of damage from the enema. Further inquiry perhaps should have been made into the results of the enema, and who gave the enema, also how it was given. Once he was resuscitated, bronchoscopy could have been done to clear the bronchial tree and obtain specimens for bacteriological examination; but I think that this is a much more shocking procedure than the sigmoidoscopy. More specific therapy, if he had a pulmonary embolus, is problematical. Some people have advised immediate operation; but the mortality has been over 90%, and this is prohibitive. He has probably got more chance of recovery with conservative measures. Anticoagulants would also be considered if he recovered from the initial phase; but again, if he has an acute virulent infection (and, remember, he has a temperature of 102° F.), anticoagulants might cause any adrenal hæmorrhage to spread. So I would withhold anticoagulants for the present, and would prefer to rely on oxygen, intravenous therapy, massive antibiotic therapy with large doses of penicillin and one of the broad-spectrum antibiotics such as "Chloromycetin", and perhaps the use of hydrocortisone rather blindly. Had all that been done, I would still predict the same course of events—namely, death.

DR. LAKE: I would like to ask Dr. Harbison how long it takes a tongue to become dry, caked and discoloured?

DR. HARBISON: The elder physicians were very interested in examining the tongue, and they felt that a dry, coated and furred tongue spelt constipation; whether they were right I do not know. One paper published recently suggested that a furred tongue could be due to any non-specific illness, and I would be prepared to accept this *plus* the fact that he was so shocked that he was mouth breathing. Had there been any evidence of dehydration apart from the dry tongue, I would expect it to be picked up in casualty at the first visit. Dehydration is not a feature of the Waterhouse-Friederichsen syndrome, because the onset is too acute.

DR. D. JEREMY: Sir, I would like to join the opposition, as it were, in support of Dr. Lake and others. I would not agree that Dr. Harbison should be so confident that the casualty officer would not miss any case of pneumonia. After all, we do not know what did happen on that day, and very often these unemployed gentlemen duck out the back door when they feel they have had enough, and he might have felt that he had had enough when he had this enema. We really do not know what went on, and also I think we do not know whence the history was obtained. He was admitted as a shock case hurriedly, breathing 60 to the minute, and his blood pressure was 60, barely able to speak or answer questions, and yet we have a history of constipation, coughing, pain in the hypochondrium made worse by coughing and deep breathing, and so I think this possibly could have been obtained in the casualty department. I think for this reason that the illness was probably more protracted than Dr. Harbison suggests, and I would support the diagnosis of pneumonia. Another theory that did come to my mind was the possibility that an upper abdominal condition did occur, although I agree that these signs could exist with a basal pneumonia. I wondered about cholecystitis with perhaps an hepatic abscess associated with septicæmia. I am interested to note the costo-vertebral angle clear at the same time, as one might assume that the upper abdominal signs would be due to a pulmonary condition.

DR. ROSE: Two people sprung this trap. One of them is Dr. Palmer, whom I shall ask at this time to tell us the answer.

Autopsy Report.

DR. A. A. PALMER: The body was that of a fairly well-nourished man of about the stated age, about 40 years. *Rigor mortis* and post-mortem lividity were present. There was a scar of an appendicectomy in the right iliac fossa. The skin appeared cyanosed and scleræ were somewhat icteric.

The trachea contained thin frothy fluid. In the pleural cavities there were adhesions between the visceral and parietal pleura. Both pleural cavities contained no fluid. The right lung weighed 65 oz., i.e., it was grossly overweight. The upper lobe was congested anteriorly and thought to be consolidated posteriorly. The middle lobe was consolidated throughout. The lower lobe was markedly congested. The left lung was also somewhat overweight, 28 oz., and it showed marked congestion in both lobes, but especially at the base. That was all that was noted by naked eye.

The pericardium was normal. There was chicken-fat clot in the right ventricle and pulmonary artery and in the left ventricle and in the aorta, and that presumably is a reflection of a high sedimentation rate. There was no ante-mortem thrombus found anywhere. There was no free fluid in the abdomen, and no other abnormality was found in the abdomen apart from some irregular areas of yellowish discoloration in the liver. The liver was not cirrhotic. The spleen was not significantly enlarged, weighing 7 oz. There were no other significant findings. The brain was not examined.

The histological examination showed us something we did not suspect. First of all, the section of the middle lobe of the right lung shows lobar pneumonia of advanced degree with uniform consolidation. Even the septa are strikingly infiltrated with polymorph leucocytes. The pneumonia is clearly of some days' duration. There are fragmenting leucocytes in many places. The section of the liver shows that there is no cirrhosis. The yellow discoloration was presumably due to fatty degeneration, but this is not evident in this section. The section of the left lung shows, as well as marked congestion, numerous small caseous tubercles typical of active pulmonary tuberculosis. Sections of other organs did not show any evidence of miliary tuberculosis.

Summary.

(i) Lobar pneumonia, including the right middle lobe.
(ii) Extensive early active tuberculosis of the left lung.

Discussion.

PROFESSOR H. K. WARD: Were any cultures taken?

DR. PALMER: No. I regret to state that we did not complete our duty and finally identify the organism. Acid-fast bacilli were found in the left lung.

DR. ROSE: Are there any comments now that you know the diagnosis?

DR. CALOV: Yes, I still want to know why he died.

DR. WHYTE: This is really the opportunity for quick thinking and sleight of hand by the pathologist.

DR. PALMER: The dice was loaded against him, in that he had active tuberculosis. Then he developed severe lobar pneumonia. Also he was unemployed. He may not have had anyone to look after him. Then he got out of bed and walked up to casualty. I should like to ask the clinicians if this might not have had an adverse effect on him. He then had an enema, then walked back again.

DR. CALOV: Probably with the enema still in him.

DR. PALMER: Well, I do not know whether that extra weight counted as the last straw.

DR. HIRST: Dr. Harvey went into this question. We have had quite a few of these cases. A number of them come from Wooloomooloo and similar regions.

DR. P. HARVEY: We went through the last 20 cases of fatal lobar pneumonia. About 50% of them died within 24 hours of admission. These were mostly alcoholics or people who were undernourished.

DR. HIRST: A good many of these cases had no fever, and many of them had no leucocytosis. We were struck by the number of cases of pneumonia coming in with shock with neither fever nor leucocytosis.

DR. ROSE: We know only too well this Foster Street alcoholism, pneumonia, sudden death syndrome. I think Dr. Harbison's discussion—and indeed, all the discussions—have been of a high order, and I think we will remember Dr. Harbison's contribution at the end of his term at Sydney Hospital.

Diagnosis.

Lobar pneumonia and tuberculosis.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

VARIOLA OR VARICELLA.[1]

[From the *Australasian Medical Gazette*, October, 1882.]

A CASE of alleged smallpox at Hamilton was reported to the Central Board of Health in Melbourne on Saturday, September 23. All the local medical men, after examining the patient, declared the disease to be true smallpox, and

[1] From the original in the Mitchell Library, Sydney.

immediately steps were taken for the isolation of the patient. A tent was erected in the middle of the police paddock, three miles from the town, and the patient was removed thither during the evening. Dr. Youl, the President of the Central Board of Health, proceeded to Hamilton on the following Monday to investigate the case: he pronounced it to be one of chickenpox of a most malignant type. However, the three local practitioners did not agree with Dr. Youl, and firmly adhered to their opinion that the case was one of true variola. In order to allay the apprehension of the public, the Government instructed Drs. Plummer and Wilson to visit the patient, and having done so, they telegraphed to the Government that after a careful consideration, they arrived at the conclusion that the case is undoubtedly variola, complicated and modified by other diseases, and that although in the eighth day pustules continue to develop, instead of fading, as they would do if it were chickenpox. Dr. Girdlestone, the City Health Officer, who also examined the patient at the request of the local medical men, is of the same opinion, but Dr. Youl still asserts that the case is one of chickenpox. The patient died on Saturday, September 30, and Dr. Valentine Browne, who had charge of the patient, states that he was suffering from hæmorrhagic variola, and that it was a well-marked case, which could not be mistaken for anything else.

Comment in "Our Melbourne Letter".

It is true that the man Wright died, and whether he died of variola or varicella, he certainly may be regarded as settled, but the settlement between the medical men who first discovered the case, the other medical men who were sent up from Melbourne to report on the case, and Dr. Youl, who, as President of the Central Board of Health, occupied the position of referee, is as distant as ever. He, that is to say Dr. Youl, insists that the case was one of varicella, with herpes, and that the patient was suffering from atheroma of the aortic valves, of which latter lesion he died. But all the other medical men declare for variola pure, if not quite simple. To be sure, of the opinion of some of them, I do not think much, but Dr. Girdlestone is both an experienced and a careful man, and as he is on the side of the variolists, one feels disposed to be doubtful of Dr. Youl's opinion. On the other hand, as no other case of variola has occurred, and a case of unquestionable varicella has occurred, and as further, the sister of the deceased is suffering from herpes zoster, the balance of probability seems to go with Dr. Youl. It is certainly not creditable to the medical science of the colony that a disease which has slain so many millions as variola has, should be in any sort of diagnostic doubt, unless we are to assume that local conditions so far modify it that under Australian influences it develops into another lesion.

Correspondence.

TOBACCO SMOKING AND LUNG CANCER.

SIR: One hundred and eighty-five years ago the eminent London surgeon, Percival Pott, published a paper drawing attention to the high incidence of cancer of the scrotum in chimney sweeps. Later investigations showed that this type of cancer is much more frequent in all those whose work exposes them to soot, tar and mineral oils. One summary of the figures collected showed 647 deaths in just under 200,000 such workers, as compared to one death in the same number of individuals in occupations with no risk of exposure. It was therefore assumed that tar and oil products were a factor in the production of this type of cancer, and recognition of the risk involved has greatly reduced its incidence. In a recent survey covering 15,000 cases of cancer, only 13 cases of scrotal cancer were recorded, and of these seven were in occupations exposing them to tar or mineral oils.

No doubt Sir Ronald Fisher considers the deduction made relating tars and cancer in this way to be evidence of the low intelligence of those concerned. No steps should have been taken to minimize this industrial hazard because it was really due to natural selection. Boys with a genetic predisposition to scrotal cancer had an irresistible urge to become chimney sweeps, and soot was nothing but a chance association. Unfortunately, the opportunities for studying chimney-sweeping monozygotic and dyzygotic twins have become unpromising, and we can hardly expect a letter to *Nature* on this subject during the present century. Maybe the descendants of the youth bearing the chimney-sweeping scrotal carcinoma gene, deprived of an opportunity of expressing their inborn lust for the brush and rods, expressed their frustration in a failure to reproduce.

At the present time we are faced with similar and equally convincing evidence that inhaling soot and tar into the lungs from cigarettes is associated with the development of cancer, and the question is whether or not we still retain a sufficient residue of the common sense possessed by our ancestors to take the necessary steps to reduce this much more serious hazard, or are going to hold our hands until every link in the chain of carcinogenesis between cigarette and cerebral metastasis has been identified.

It is now just 30 years since I first heard a physician state that there was a relationship between smoking, bronchitis and lung cancer, yet in that long period no practical steps have been taken to reduce this risk, and we continue to wait while parlour scientists dream up fantastic theories, and the tobacco companies intensify their sales campaigns.

Yours, etc.,

J. ORDE POYNTON.

Institute of Medical and Veterinary Science,
Adelaide.
June 19, 1959.

PRIMARY PERINEPHRIC ABSCESS.

SIR: The discussions as the clinico-pathological conference held at Sydney Hospital on May 20, 1958, and published in THE MEDICAL JOURNAL OF AUSTRALIA of June 20, 1959, on pages 848 to 851, make interesting reading. I would like to congratulate Dr. B. J. Lake on the erudite manner in which he dealt with the clinical data available to him.

The case calls to my mind a lecture given in Bathurst in 1927 by the late eminent urologist Dr. Gordon Craig. The subject of this lecture was "Primary Perinephritic Abcess" or carbuncle of the kidney. If I remember correctly, he stated that an infected embolus lodged in an end artery of the renal cortex, forming a primary focus or renal carbuncle, which eventually ruptured into the perinephric tissues, causing an abscess, the size of which depended on its duration. One most important point he drew attention to was that, in the majority of cases, there was an antecedent history of boils, abcesses, carbuncles and pustules.

Here I would like to mention that I have operated on several such cases prior to the advent of antibiotics, and all of these recovered after drainage. No mention was made in the history of this case of any of the above infections, which we know are particularly prone to occur in diabetics who go untreated.

I am inclined to agree with Dr. H. M. Whyte that a diagnosis of this case could have been made much earlier, even on the evidence given in the clinical history.

Yours, etc.,

W. W. CAMERON.

Cronulla,
New South Wales.
June 22, 1959.

THE UNIVERSITY OF MELBOURNE BUILDING FUND.

SIR: It is interesting to recall that in the beginning a university was a guild with no buildings at all, just a gathering of people pursuing the search for the truth. This, I suggest, is still the function of the university; but with the greatly developed pursuit of knowledge, particularly in the scientific field, the provision of adequate buildings has become an immense problem and an expensive one.

One aspect of this problem, however, that may not be fully appreciated by all people, is the post-graduate one. For this purpose came the later development of the Colleges of Surgeons, Physicians, Obstetricians and Gynæcologists, to mention a few of them. Without the university facilities, however, their success would have been seriously curtailed. This is equally true today, and will be for a very long time.

Speaking for the Royal College of Obstetricians and Gynæcologists, I can say with conviction that directly and indirectly to the University of Melbourne our College owes a debt of gratitude. Conferences, post-graduate lectures by eminent visitors, as well as research have in large part been possible by the generous help in physical facilities and the wonderful cooperation of university personnel, both administrative and teaching.

It is, at present at any rate, quite impossible for the colleges of specialists to provide for their higher degrees such facilities as dissecting rooms, physiological and biochemical laboratories, and to the university we express our deep appreciation.

We realize, however, that a vote of thanks is quite an inadequate mode of appreciation, and as a College we warmly support the appeal to Australian citizens for further funds, and large ones, to extend the building programme of a noble university.

The University of Melbourne has an enviable past. It has served its State and Australia with distinction; it has laurels, but as a progressive institution has no intention *of resting on them. The Fellows and Members of our* college have a real interest in the success of the building fund, which we regard as essential to ensure that development of the university can keep pace with the rapidly increasing demand of an educated and scientific world.

Yours, etc.,

BRUCE MAYES,
Chairman, Australian Regional Council,
Royal College of Obstetricians
and Gynæcologists.

University of Sydney,
Sydney.
Undated.

Medical Matters in Parliament.

SENATE.

THE following extracts from *Hansard* relate to the proceedings of the Senate on April 22, 1959.

Solar Eclipses.

SENATOR BRANSON asked the Minister representing the Minister for Health, upon notice:

In view of the damage which was caused to the eyesight of a large number of children during the recent partial eclipse of the sun, will the Minister give consideration to producing a pamphlet for distribution to Australian school children showing, in pictorial as well as in explanatory form, the permanent damage that can result to the eyes of persons who gaze directly at the sun?

SENATOR HENTY: The Minister for Health has now furnished the following reply:

The subject of damage to the eyesight of children caused by the recent partial eclipse of the sun will be discussed at the next meeting of the Public Health Committee of the National Health and Medical Research Council to be held within the next few weeks.

Smallpox.

SENATOR WARDLAW asked the Minister representing the Minister for Health, upon notice:

1. Is it a fact that the serious outbreak of smallpox at Singapore has now reached epidemic proportions?

2. Are all possible precautions being taken to protect Australia in this emergency and, if so, what exactly are the measures being taken to meet the situation?

SENATOR HENTY: The Minister for Health has now furnished the folowing replies:

1. Yes.

2. All possible precautions are being taken to protect Australia in this emergency. A number of the precautions do not require to be specially implemented as they are part of the permanent precautions maintained by my department in the face of the continuous threat of smallpox to which Australia is exposed from outbreaks in various parts of the world. These permanent precautions include the recording of the addresses in Australia of all persons arriving from overseas, the insistence on prior vaccination against smallpox of all persons arriving by air and the maintenance of quarantine stations in readiness to isolate cases or contacts. Special precautions taken for the outbreak at Singapore include arrangements for the vaccination of all persons arriving by sea from or through Singapore if they are not already holding current International Certificates of Vaccination. Persons who refuse vaccination on religious or other grounds will be required to report daily for medical inspection until all risk of the disease has passed. In addition, to protect Australians travelling overseas, all shipping companies have been *requested to advise intending travellers of the desirability* of being vaccinated before leaving Australia.

HOUSE OF REPRESENTATIVES.

THE following extracts from *Hansard* relate to the proceedings *of the House of Representatives on April 22, 1959.*

Royal Adelaide Hospital.

MR. MAKIN: Has the Minister for Health yet completed his consideration of the question whether the Royal Adelaide Hospital at Northfield should be accepted as an approved institution for hospital benefits purposes?

DR. DONALD CAMERON: This question was asked the other *day. A decision has been arrived at, and I will convey it* to the honorable member.

Hospital Benefits Scheme.

MR. WILSON: I direct a question to the Minister for Health. In 1958 the Government amended the National Health Act for the purpose, *as the Minister stated, of* helping the aged sick and the chronically sick. In view of the non-recognition for fund benefit of certain approved, private, registered hospitals, with the effect that the aged and chronically sick therein are thereby deprived of fund benefit, and in view of certain other anomalies which have become apparent since the passing of the amendment, will the Minister examine the working of the act and refer to Cabinet for determination any matters which have caused hardship or in relation to which the intentions of Parliament as stated by the Minister in his second-reading speech, are not being carried out?

DR. DONALD CAMERON: The National Health Act is a very complex piece of legislation and it is, I think, quite natural that some people should be a little confused in their interpretation of it, when they are considering whether or not it is being properly given effect to. But it is very doubtful, to say the least, that the intention of Parliament is not being carried out or, indeed, that people are being deprived of benefits under the recent amendment of the act. In the main those who now do not receive benefits under the special accounts procedure would in any case not have received fund benefit, and it is undeniable that there is a vast number of people who are infinitely better off under the amendment. I suppose, Sir, that in any complicated piece of legislation some anomalies are likely to arise. Of course, if they are brought to my notice, I shall be very glad to discuss them and my interpretation of the administration of provisions relating to them with my colleagues in the Cabinet.

Influenza.

MR. DAVIES: I direct to the Minister for Health a question that is supplementary to the one asked yesterday by the honorable member for Watson. The Minister stated in reply to that question that he did not think the severity of the present influenza outbreak merited a public warning. I now ask the honorable gentleman: Has he been informed of the position in Tasmania, where schools at Rosebery, Railton and other places have been closed, and where shops have been temporarily closed and production in mines and factories has been drastically cut, because of the epidemic? I understand that the epidemic has already resulted in the death of four children in Western Australia. Will the Minister reconsider his decision and issue a statement, in view of the severity of the epidemic and the large number of pneumonia cases which has resulted?

DR. DONALD CAMERON: It is a little difficult to know what form such a warning could take. A warning, if it is to be worth anything, must inform the people of some method of avoiding contracting a disease. Influenza is a very easily transmissible disease, and there are no practical methods for preventing large numbers of people from being infected with it once it appears in a population. As the honorable gentleman is probably aware, influenza vaccine is manufactured in large quantities by the Commonwealth Serum Laboratories, and these supplies are available to doctors throughout Australia. But this vaccine is a preventive and not a curative—and perhaps I can say that it is not 100 per cent effective as a preventive. I should think it is widely known to the medical profession that this vaccine is available. As far as curative measures go, they are widely known and freely available. I cannot really see, Sir, that the Minister for Health's uttering a warning can do anything to assist the position.

Hospital Benefits Scheme.

MR. BRYANT asked the Minister for Health, upon notice:

1. What principles govern the payments of extra benefits to the chronically ill in selected hospitals?

2. What is the basis for the declaration of a hospital as a selected hospital?

3. Will he give consideration to changing the principle to one of selecting the patients and not the hospital; if not, why not?

DR. DONALD CAMERON: The answers to the honorable member's questions are as follows:

1. The principle of the legislation which came into effect from 1st January this year is that a chronically ill patient, who is a contributor to a registered hospital insurance organization, is guaranteed payment of up to 16s. per day fund benefit, as well as Commonwealth benefits of up to £1 per day, for the whole period during which he receives hospital treatment in a hospital recognized for the purpose of the guaranteed payment in accordance with the National Health Act.

2. The basis for recognition of a hospital for the purposes of the guaranteed fund benefits is prescribed in the National Health Act, which provides that recognition cannot be accorded to benevolent homes, convalescent homes, homes for aged persons, rest homes, or institutions which provide accommodation principally for permanent patients.

3. The principle of selecting the patients and not the hospital for the purposes of the guaranteed fund benefits was thoroughly investigated and found to be administratively impracticable.

Post-Graduate Work.

SEMINARS AT ROYAL PRINCE ALFRED HOSPITAL.

SEMINARS are held at the Royal Prince Alfred Hospital, Sydney, on Fridays, from 1.15 to 2.15 p.m., in the Scot Skirving Lecture Theatre. The programme from July to November is as follows:

July 3, Thoracic Section, "The Silent Solitary Pulmonary Nodule", Mr. Rowan Nicks; July 10, Cardiac Section, "Dye Dilution Techniques", Dr. G. Thorburn; July 17, Gastro-Enterology Section, "Continuing Hepatitis", Dr. N. Gallagher; July 24, Hæmatology Section, "The Hageman Factor", Dr. J. Margolis (by invitation); July 31, Renal Section, "Renal Biopsy", Professor R. Kark (Illinois College of Medicine, Chicago, by invitation).

August 7, Thoracic Section, "The Hypersensitive Lung", Dr. J. Sands; August 14, Cardiac Section, "The Cardiomyopathies", Dr. M. D. Kay and Dr. J. B. Hickie (by invitation); August 21, Neurology Section, "Acute Bacterial Meningitis", Dr. W. B. Grigor (by invitation) and Dr. J. Hassall; August 28, Hæmatology Section, "Recent Advances and Social Factors in Bleeding Disorders", Dr. H. Kronenberg and Dr. C. Kerr.

September 4, Thoracic Section, "Amyloidosis", Dr. L. Bernstein; September 11, Cardiac Section, "Coronary Heart Disease"; September 18,[1] Neurology Section, "Modes of Presentation of Cerebral Tumour", Dr. O. Appenzeller; September 25 (Royal Prince Alfred Hospital Reunion), Endocrinology Section, "The Clinical Biochemist", Professor J. Nabarro (University College Hospital, London, by invitation).

October 2, no seminar, Royal Prince Alfred Hospital Reunion; October 9, Thoracic Section, "Occupational Lung Disease", Dr. M. R. Joseph and Professor J. Gough (Cardiff, Wales, by invitation); October 16, no seminar, meeting of The Royal Australasian College of Physicians; October 23,[2] Pædiatrics Section, "The International Pædiatric Conference, Toronto, 1959", Dr. Gertrude Angel; October 30, Gastro-Enterology Section, "Crohn's Disease", Mr. P. A. Tomlinson and Dr. V. J. McGovern.

November 6, Endocrinology Section, "Clinical Application of Steroid Hormone Assay", Dr. J. M. Greenaway.

Each seminar will be followed by a clinico-pathological session at 2.15 p.m., by "unit rounds" at 3.30 p.m. and by "grand rounds" at 5 p.m.

[1] There will be no clinico-pathological conference on this day.

[2] The seminar on October 23 will be followed by a meeting at Royal Alexandra Hospital for Children at 4.30 p.m.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Week-end Course in Pædiatrics.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that a week-end course in pædiatrics will be held in the Doreen Dew Lecture Theatre of the Royal Alexandra Hospital for Children, on Saturday and Sunday, August 1 and 2, 1959, under the supervision of Professor Lorimer Dods. The programme will be as follows:

Saturday, August 1: 9.30 a.m., "Emergencies in New-Born Infants", Dr. S. E. L. Stening; 11 a.m., "Some Common Postural Defects and their Relation to General Health", Dr. R. L. Stephen and Dr. D. G. Hamilton; 12 noon, discussion; 2 p.m., clinical demonstration and discussion, Professor Lorimer Dods; 3.45 p.m., "Subacute Respiratory Disease", Dr. G. Blaxland.

Sunday, August 2: 9.30 a.m., "Migraine and Cyclic Vomiting", Dr. C. A. Rigg; 11 a.m., symposium, "Fibrocystic Disease of the Pancreas": (*a*) "Diagnostic Tests", Dr. W. Grigor, (*b*) "Meconium Ileus", Dr. J. Steigrad, (*c*) "Respiratory Aspects", Dr. J. Beveridge; 12 noon, discussion; 2 p.m., "Growing Pains and the Diagnosis and Management of Rheumatic Fever", Dr. B. Dowd; 3.45 p.m., "Use and Abuse of Common Drugs in Pædiatric Practice", Dr. J. C. Quoyle; 4.15 p.m., question time, Dr. J. Steigrad, Dr. B. Dowd and Dr. J. C. Quoyle.

The fee for attendance, including luncheons, is £4 16s., and without luncheons, £4 4s. The closing date for applications is July 24, 1959, and those wishing to attend should make written application to the Course Secretary, the Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 4497-8.

Course in Obstetrics and Gynæcology at The Women's Hospital, Crown Street.

The Post-Graduate Committee in Medicine in the University of Sydney announces that a course in obstetrics and gynæcology will be held at the Women's Hospital, Crown Street, Sydney from Monday to Friday, August 31 to September 4, 1959, under the supervision of Dr. Ian Blake. Enrolments will be limited to 14 post-graduate students in residence and 12 attending as external students. The fees for attendance are £8 18s 6d. (including board and residence), or £6 6s. (external attendance). Candidates may take up residence on Saturday afternoon, August 29, after 4 p.m.

Written application, enclosing remittance for attendance as either a resident or an external student, should be made at an early date to the Course Secretary, the Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Enrolments will be made in order of receipt of fees, and the list will be closed as soon as the required number of applications is received. Telephone: BU 4497-8.

Examination Results.

The Post-Graduate Committee in Medicine in the University of Sydney announces that the undermentioned candidates satisfied the examiners at the recent examinations for Part II of the following diplomas of the University of Sydney, and are now eligible for the award of the relevant diploma:

Diploma in Anæsthesia: G. C. Fisk.

Diploma in Dermatological Medicine: J. B. Francis, N. A. Gunn, L. S. Wallman.

Diploma in Gynæcology and Obstetrics: A. H. Bradfield, H. J. Solomon.

Diploma in Ophthalmology: J. B. Carpenter (awarded Cedric Cohen Memorial Prize in Ophthalmology), J. D. Lister, D. C. Swan.

Diploma in Diagnostic Radiology: E. A. Jackson, W. J. Lachlan, S. W. Lush, W. R. Vautin.

Notes and News.

Nuffield Foundation Dominion Travelling Fellowships.

The Nuffield Foundation will continue in 1960 its scheme of offering a number of travelling fellowships to Australian graduates. Seven awards will be available in medicine, the natural sciences and the humanities and social sciences.

The purpose of the fellowships is to enable Australian graduates of outstanding ability to gain experience and training in the United Kingdom in their chosen fields, and to make contact there with scholars working in those fields, with a view to the Fellows' equipping themselves to take up posts in teaching and/or research in Australia.

The fellowships are intended for men or women of first-rate intellectual and personal qualities, who have already shown unusual capacity to advance knowledge and teaching in one of the fields concerned. The Foundation wishes the awards to be open on as wide a basis as possible, and it is intended that the broad divisions listed above should cover such fields as dentistry, veterinary science, agriculture, engineering, architecture, etc. Candidates must be Australian nationals (i.e., persons having the right to vote at Australian parliamentary elections), normally between the ages of 25 and 35 years, and must be university graduates holding, preferably, a master's or doctor's degree, and having subsequently had a year or more of teaching or research experience on the staff of a university or comparable institution.

A fellowship will normally be tenable for one year, but in exceptional cases may be extended for a further period of a few months. The fellowship will provide for return travelling expenses, at tourist rates, of a Fellow between his home residence and the United Kingdom and, if he is married, similar expenses for his wife. (The Foundation can only reimburse the travel agency concerned by payment in sterling direct to the London agents, and cannot reimburse the Fellow direct.) An adequate allowance will be made for the Fellow's living and travelling expenses in the United Kingdom, and for his academic fees, books and other incidental expenses, as well as a personal allowance. The total value of an award, including all travelling expenses, varies with the needs and family responsibilities of the holder, but will in no case be less than £900 sterling.

A Fellow will be expected to resume residence in Australia on the completion of the fellowship.

Except with the express permission of the trustees of the Foundation, a Fellow may not hold any other award concurrently with the Fellowship.

A Fellow will be required to carry out, at centres approved by the trustees of the Foundation, a programme of research work and training, similarly approved. Other work, paid or unpaid, may not be undertaken without the permission of the trustees. During the tenure of the fellowship a Fellow will not normally be permitted to prepare specifically for, or to take, examinations for higher degrees or diplomas awarded by bodies in the United Kingdom.

A Fellow will be required to submit to the trustees, at the end of the fellowship, a report on his work during the period of fellowship.

Should the trustees at any time find that a Fellow neglects or has neglected the obligations of the appointment, they shall have power immediately to terminate the Fellowship.

The fellowships will be awarded by the trustees of the Foundation on the recommendation of its Advisory Committee in Australia.

Applications for Fellowships to begin in 1960 should be submitted not later than Friday, August 21, 1959, to the Secretary, The Nuffield Foundation Australian Advisory Committee, Engineering Chemistry Laboratory, University of Melbourne, Carlton, N.3, Victoria, from whom copies of the application form may be obtained. Applications must be accompanied by a programme of intended work in the United Kingdom in as specific terms as possible.

College of Pathologists of Australia.

NOTICE TO VICTORIAN MEMBERS.

THE Victorian Members of the College of Pathologists of Australia will hold a scientific meeting on Friday, July 17, at 5.15 p.m. in the Royal Society Hall, 9 Victoria Street, Melbourne. The programme is as follows: (i) "ECHO Virus Infections in Children", Ian Jack, introduced by J. W. Perry; (ii) "Acute Respiratory Diseases in Melbourne in the Autumn of 1959", I. D. Hicks, D. C. Cowling and A. A. Ferris. Fellows and members of the other Colleges are cordially invited to attend.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JUNE 6, 1959.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	..	2(2)	4	..	..	..	..	..	6
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	2	..	4	..	..	..	5	..	11
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	1	19(19)	2	..	..	..	..	..	22
Diphtheria	1	..	..	..	1(1)	..	..	..	2
Dysentery (Bacillary)	..	2(2)	1	..	3(3)	..	1	..	7
Encephalitis	..	1(1)	..	..	..	..	..	..	1
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	40(12)	16(7)	17(6)	1	4(2)	..	1	1	80
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	1	..	..	..	1
Leptospirosis	1	..	1	..	..	..	..	..	2
Malaria	..	1(1)	1	..	..	..	..	..	2
Meningococcal Infection	1	3(3)	..	..	..	..	..	..	4
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	..	..	..	..	..	1	..	..	1
Puerperal Fever	..	1(1)	..	..	..	..	..	..	1
Rubella	..	11(8)	..	1(1)	1(1)	..	..	..	13
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	7(2)	17(13)	2(1)	4(4)	3(2)	1(1)	..	1	35
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	1	..	..	..	..	..	1
Trachoma	..	..	..	..	4	..	40	..	44
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	33(25)	19(13)	18(7)	8(5)	6(4)	2(1)	..	..	86
Typhoid Fever	..	1(1)	..	..	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	..	..	1	..	..	..	..	..	1
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

Chair of Mathematical Statistics.

DR. H. O. LANCASTER, who was previously Associate Professor of Medical Statistics, has been appointed to the recently created Chair of Mathematical Statistics.

Honours.

BIRTHDAY HONOURS: CORRIGENDUM.

BY an unfortunate error in the list of Birthday Honours published in the issue of June 27, 1959, we have shown Dr. Lindsay Alexander Dey as having been created a Member of the Most Excellent Order of the British Empire. Dr. Dey was in fact created a Commander of this Order. We regret the error and offer Dr. Dey our apologies.

Corrigendum.

THE SPECIFICITY OF LABORATORY TESTS FOR OCCULT BLOOD IN FÆCES.

AN error was made in the spelling of the name of the author of the article entitled "The Specificity of Laboratory Tests for Occult Blood in Fæces" which was published in the issue of June 20, 1959, at page 836. The author's name is June B. Sheath, not June B. Seath as printed. We regret this error.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Upton, John, M.B., Ch.B., 1955 (Univ. Edinburgh), c.o. 10 Clanalpine Street, Eastwood.

Kariks, Jekabs, M.D., 1949 (Univ. Tubingen), D.T.M. & H., Sydney, 1957 (registered under Section 17 (2B) of the Act), Public Health Department, Goroka, New Guinea.

The undermentioned has applied for election as a member of the Victorian Branch of the British Medical Association:

Joske, John Webster, M.B., B.S., 1954 (Univ. Adelaide), Casterton, Victoria.

Medical Appointments.

Dr. D. N. Robinson has been appointed Honorary Plastic Surgeon at the Royal Adelaide Hospital, Adelaide.

Dr. R. G. Painter has been appointed Assistant to the Director, Psychiatric Clinic at the Royal Adelaide Hospital, Adelaide.

Deaths.

THE following deaths have been announced:

STEELE.—William Huey Gerrard Steele, on May 15, 1959, at Healesville, Victoria.

ADCOCK.—David Adcock, on June 23, 1959, at Sydney.

LEE.—Harry Herbert Lee, on June 24, 1959, at Wollongong, N.S.W.

SILBERBERG.—Montefiore David Silberberg, on June 25, 1959, at Melbourne.

ABERNETHY.—Keith Forbes Abernethy, on June 27, 1959, at Kojonup, Western Australia.

CRAIG.—Stanley Earles Craig, on June 27, 1959, at Perth.

REES.—Walter Llewellyn Rees, on June 27, 1959, at Rose Bay, N.S.W.

Diary for the Month.

JULY 13.—Victorian Branch, B.M.A.: Finance Subcommittee.
JULY 14.—New South Wales Branch, B.M.A.: Executive and Finance Committee; Organization and Science Committee.
JULY 15.—Victorian Branch, B.M.A.: Clinical Meeting at Royal Melbourne Hospital.
JULY 16.—Victorian Branch, B.M.A.: Executive of Branch Council.
JULY 21.—New South Wales Branch, B.M.A.: Medical Politics Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations, other than those normally used by the Journal, and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference to an article in a journal the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of article. In a reference to a book the following information should be given: surname of author, initials of author, year of publication, full title of book, publisher, place of publication, page number (where relevant). The abbreviations used for the titles of journals are those of the list known as "World Medical Periodicals" (published by the World Medical Association). If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this Journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in Australia can become subscribers to the Journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rate is £6 *per annum* within Australia and the British Commonwealth of Nations, and £7 10s. *per annum* within America and foreign countries, payable in advance.